

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

**2014**  
**R410A**

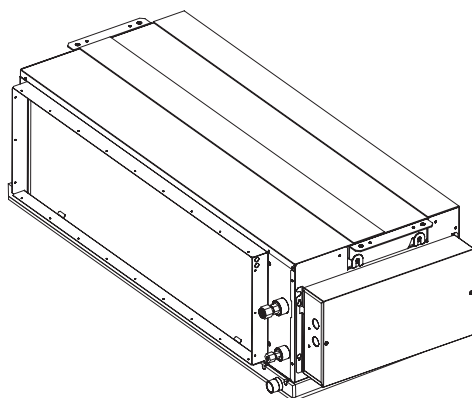
# SERVICE MANUAL

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## **Series PEA** **Ceiling Concealed**

Model name

&lt;Indoor unit&gt;

**PEA-RP100GAA****PEA-RP125GAA****PEA-RP140GAA**

INDOOR UNIT

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## 1-1. ALWAYS OBSERVE FOR SAFETY

**Before obtaining access to terminal, all supply circuits must be disconnected.**

## 1-2. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilising refrigerant R410A

**Use new refrigerant pipes.**

In case of using the existing pipes for R22, be careful with the followings.

- For RP125 and 140, be sure to perform replacement operation before test run.
- Change flare nut to the one provided with this product. Use a newly flared pipe.
- Avoid using thin pipes.

**Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.**

**In addition, use pipes with specified thickness.**

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

**Store the piping to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)**

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

**Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.**

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

**Charge refrigerant from liquid phase of gas cylinder.**

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

**Do not use refrigerant other than R410A.**

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

**Use a vacuum pump with a reverse flow check valve.**

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

**Use the following tools specifically designed for use with R410A refrigerant.**

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

**Handle tools with care.**

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

**Do not use a charging cylinder.**

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

**Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**

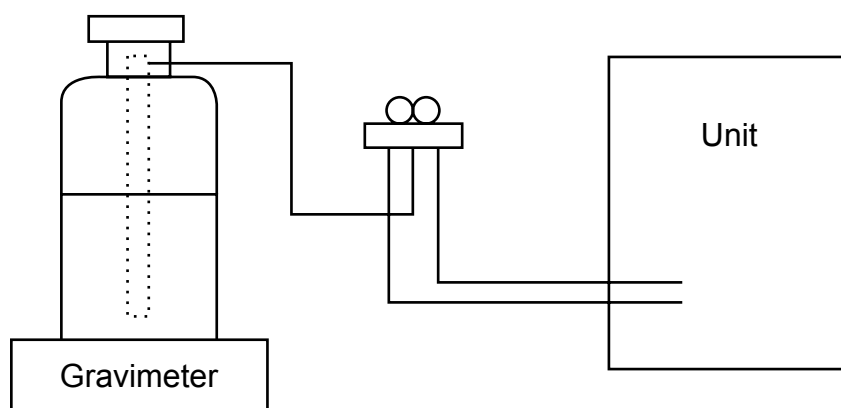
**[1] Cautions for service**

- (1) Perform service after recovering the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously.  
Be sure to use a filter drier for new refrigerant.

**[2] Additional refrigerant charge**

**When charging directly from cylinder**

- Check that cylinder for R410A on the market is syphon type.
- Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



### [3] Service tools

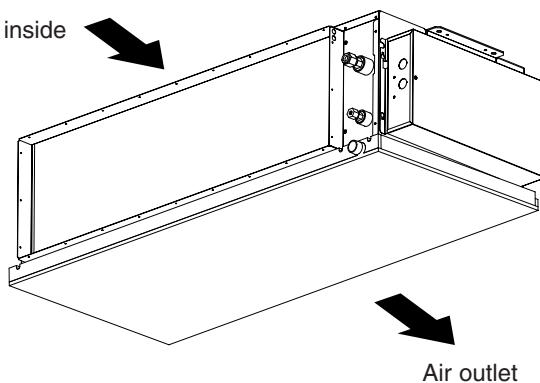
Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R410A    · Top of cylinder (Pink)
		· Cylinder with syphon
⑧	Refrigerant recovery equipment	—

## 2 PART NAMES AND FUNCTIONS

### • Indoor Unit

Air intake (sucks the air inside the room into the unit)



In case of rear inlet

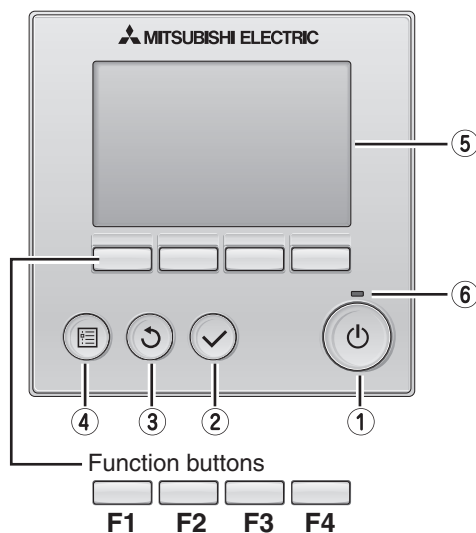
## ● Wired remote controller (option)

### Wired remote controller function

\* The functions which can be used are restricted according to the model.

○ : Supported ✕ : Unsupported

	Function	PAR-30MAA/PAR-31MAA		PAR-21MAA
		Slim	City multi	
Body	Product size H × W × D (mm)	120 × 120 × 19		120 × 130 × 19
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		✕
Energy-saving	Energy-saving operation schedule	○	✕	✕
	Automatic return to the preset temperature	○		✕
Restriction	Setting the temperature range restriction	○		○
Function	Operation lock function	○		○
	Weekly timer	○		✕
	On / Off timer	○		○
	High Power	○	✕	✕
	Manual vane angle	○		○



#### ① ON / OFF button

Press to turn ON/OFF the indoor unit.

#### ② SELECT button

Press to save the setting.

#### ③ RETURN button

Press to return to the previous screen.

#### ④ MENU button

Press to bring up the Main menu.

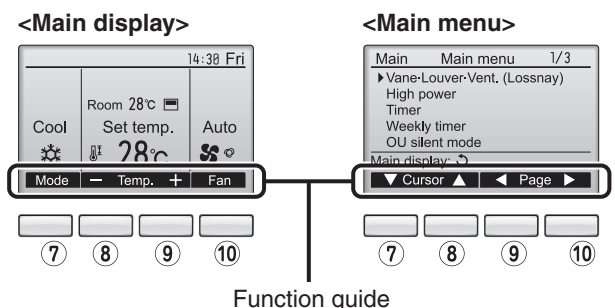
#### ⑤ Backlit LCD

Operation settings will appear.  
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

**When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the (1) (ON / OFF) button)**

The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.

When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



#### ⑥ ON / OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

#### ⑦ Function button F1

Main display : Press to change the operation mode.  
Main menu : Press to move the cursor down.

#### ⑧ Function button F2

Main display : Press to decrease temperature.  
Main menu : Press to move the cursor up.

#### ⑨ Function button F3

Main display : Press to increase temperature.  
Main menu : Press to go to the previous page.

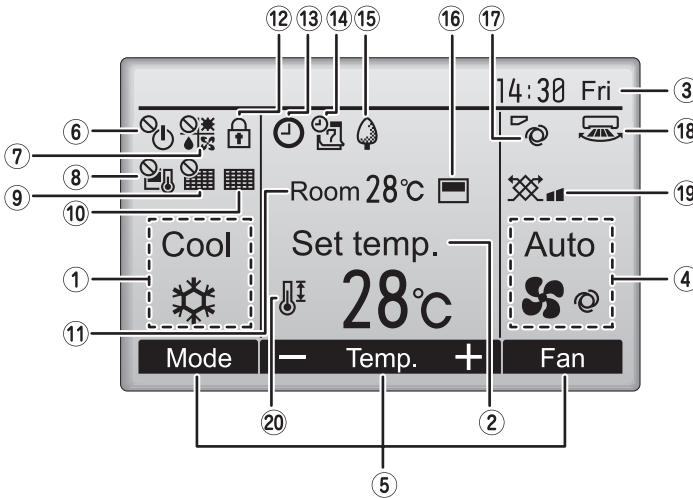
#### ⑩ Function button F4

Main display : Press to change the fan speed.  
Main menu : Press to go to the next page.

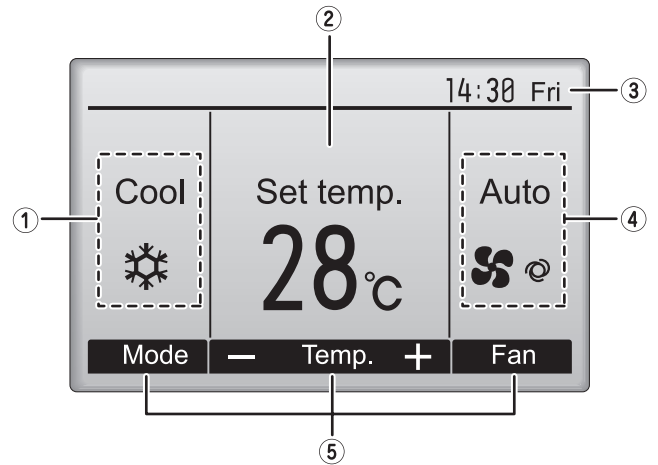
The main display can be displayed in two different modes: "Full" and "Basic".  
The initial setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting.

### <Full mode>

\* All icons are displayed for explanation.



### <Basic mode>



#### ① Operation mode

Indoor unit operation mode appears here.

#### ② Preset temperature

Preset temperature appears here.

#### ③ Clock (See the Installation Manual.)

Current time appears here.

#### ④ Fan speed

Fan speed setting appears here.

#### ⑤ Button function guide

Functions of the corresponding buttons appear here.



Appears when the ON/OFF operation is centrally controlled.



Appears when the operation mode is centrally controlled.



Appears when the preset temperature is centrally controlled.



Appears when the filter reset function is centrally controlled.



Indicates when filter needs maintenance.

#### ⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.



Appears when the buttons are locked.



Appears when the On/Off timer or Night setback function is enabled.



Appears when the Weekly timer is enabled.



Appears while the units are operated in the energy-save mode.



Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature.

appears when the thermistor on the indoor unit is activated to monitor the room temperature.



Indicates the vane setting.



Indicates the louver setting.



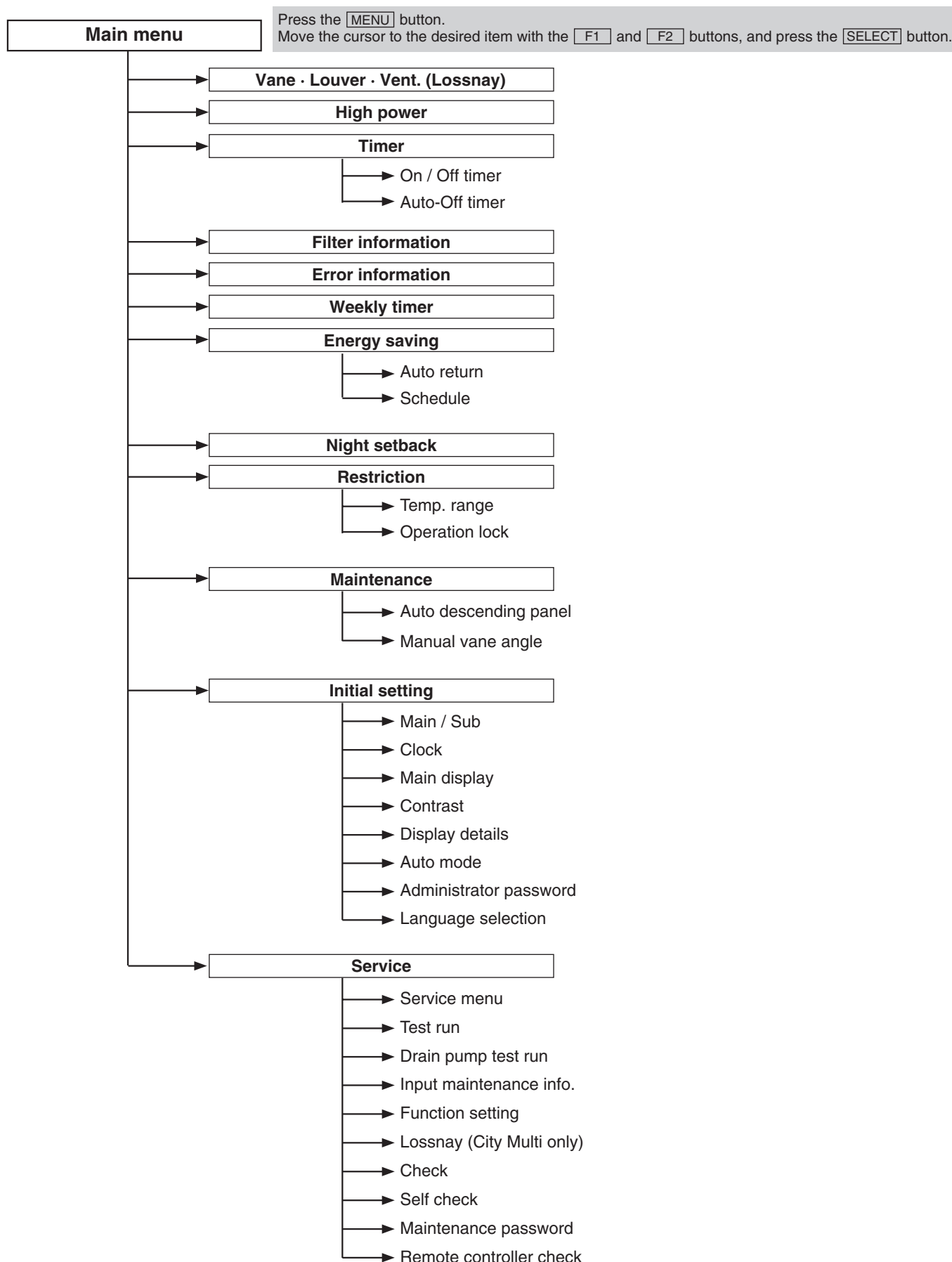
Indicates the ventilation setting.



Appears when the preset temperature range is restricted.

Most settings (except ON / OFF, mode, fan speed, temperature) can be made from the Menu screen.

## Menu structure



**Not all functions are available on all models of indoor units.**

## Main menu list

Setting and display items		Setting details
Vane · Louver · Vent. (Lossnay)		<b>Use to set the vane angle.</b> • Select a desired vane setting from five different settings. <b>Use to turn ON / OFF the louver.</b> • Select a desired setting from "ON" and "OFF." <b>Use to set the amount of ventilation.</b> • Select a desired setting from "Off," "Low," and "High."
High power		<b>Use to reach the comfortable room temperature quickly.</b> • Units can be operated in the High-power mode for up to 30 minutes.
Timer	On/Off timer	<b>Use to set the operation On/Off times.</b> • Time can be set in 5-minute increments. * Clock setting is required.
	Auto-Off timer	<b>Use to set the Auto-Off time.</b> • Time can be set to a value from 30 to 240 in 10-minute increments.
Filter information		<b>Use to check the filter status.</b> • The filter sign can be reset.
Error information		<b>Use to check error information when an error occurs.</b> • Error code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. * The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.
Weekly timer		<b>Use to set the weekly operation On / Off times.</b> • Up to eight operation patterns can be set for each day. * Clock setting is required. * Not valid when the On/Off timer is enabled.
Energy saving	Auto return	<b>Use to get the units to operate at the preset temperature after performing energy-save operation for a specified time period.</b> • Time can be set to a value from 30 and 120 in 10-minute increments. * This function will not be valid when the preset temperature ranges are restricted.
	Schedule	<b>Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the energy-saving rate.</b> • Up to four energy-save operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy-saving rate can be set to a value from 0% or 50 to 90% in 10% increments. * Clock setting is required.
Night setback		<b>Use to make Night setback settings.</b> • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set. * Clock setting is required.
Restriction	Temp. range	<b>Use to restrict the preset temperature range.</b> • Different temperature ranges can be set for different operation modes.
	Operation lock	<b>Use to lock selected functions.</b> • The locked functions cannot be operated.
Maintenance	Auto descending panel	<b>Auto descending panel (Optional parts) Up / Down you can do.</b>
	Manual vane angle	<b>Use to set the vane angle for each vane to a fixed position.</b>
Initial setting	Main/Sub	<b>When connecting two remote controllers, one of them needs to be designated as a sub controller.</b>
	Clock	<b>Use to set the current time.</b>
	Main display	<b>Use to switch between "Full" and "Basic" modes for the Main display.</b> • The initial setting is "Full."
	Contrast	<b>Use to adjust screen contrast.</b>

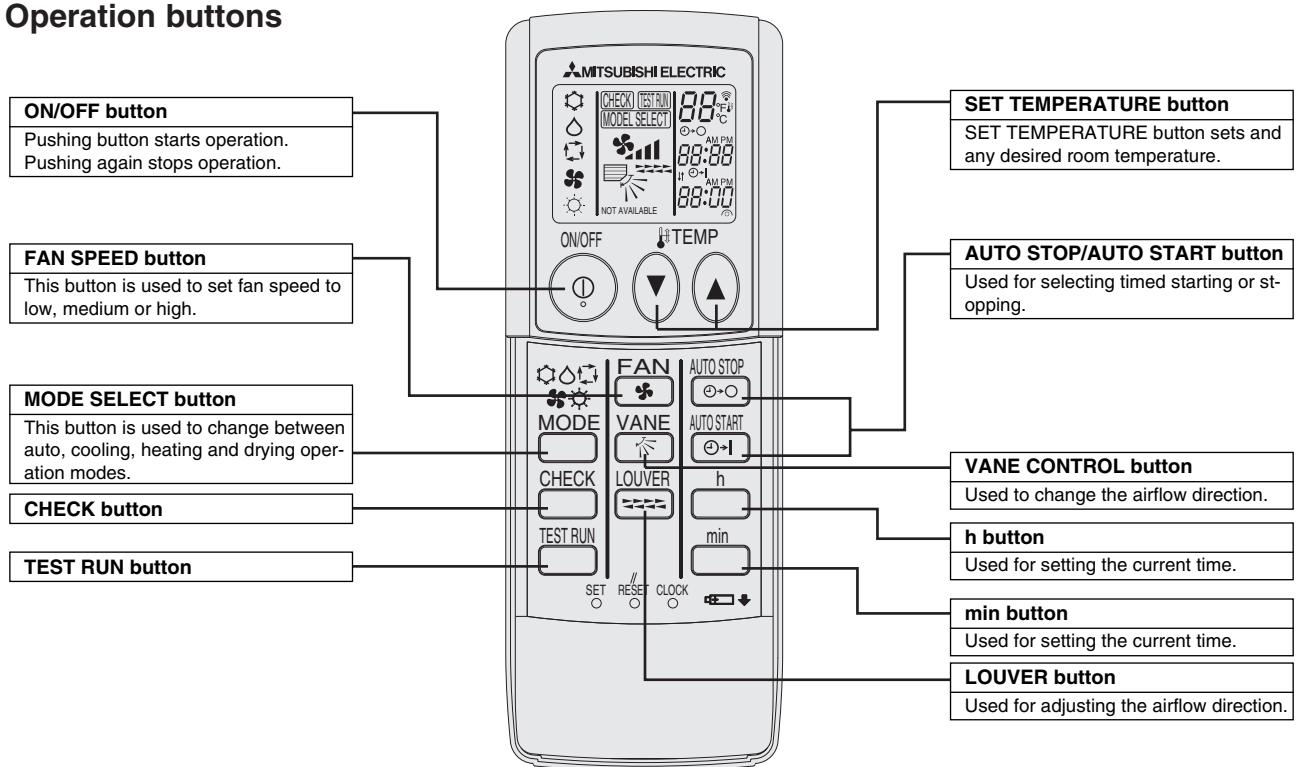


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Setting and display items		Setting details
Initial setting	Display details	<b>Make the settings for the remote controller related items as necessary.</b> <b>Clock:</b> The initial settings are "Yes" and "24h" format. <b>Temperature:</b> Set either Celsius (°C) or Fahrenheit (°F). <b>Room temp. :</b> Set Show or Hide. <b>Auto mode:</b> Set the Auto mode display or Only Auto display.
	Auto mode	<b>Whether or not to use the AUTO mode can be selected by using the button.</b> <b>This setting is valid only when indoor units with the AUTO mode function are connected.</b>
	Administrator password	<b>The administrator password is required to make the settings for the following items.</b> •Timer setting •Energy-save setting •Weekly timer setting •Restriction setting •Outdoor unit silent mode setting •Night set back
	Language selection	<b>Use to select the desired language.</b>
Service	Test run	<b>Select "Test run" from the Service menu to bring up the Test run menu.</b> •Test run •Drain pump test run
	Input maintenance	<b>Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.</b> <b>The following settings can be made from the Maintenance Information screen.</b> •Model name input •Serial No. input •Dealer information input
	Function setting	<b>Make the settings for the indoor unit functions via the remote controller as necessary.</b>
	LOSSNAY setting (City Multi only)	<b>This setting is required only when the operation of City Multi units is interlocked with LOSSNAY units.</b>
	Check	<b>Error history:</b> Display the error history and execute delete error history. <b>Refrigerant leak check:</b> Refrigerant leaks can be judged. <b>Smooth maintenance:</b> The indoor and outdoor maintenance data can be displayed. <b>Request cord:</b> Details of the operation data including each thermistor temperature and error history can be checked.
	Self check	<b>Error history of each unit can be checked via the remote controller.</b>
	Maintenance password	<b>Take the following steps to change the maintenance password.</b>
	Remote controller check	<b>When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.</b>

## Wireless remote controller (option)

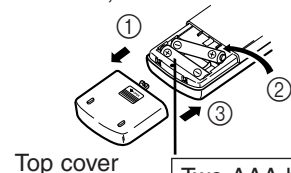
### ● Operation buttons



- When using the wireless remote controller, point it towards the receiver on the indoor unit.
- If the remote controller is operated within approximately two minutes after power is supplied to the indoor unit, the indoor unit may beep twice as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the remote controller has been received. Signals can be received up to approximately 7 meters in a direct line from the indoor unit in an area 45° to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is flashing, the unit needs to be inspected. Consult your dealer for service.
- Handle the remote controller carefully. Do not drop the remote controller or subject it to strong shocks. In addition, do not get the remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the remote controller, install the holder included with the remote controller on a wall and be sure to always place the remote controller in the holder after use.

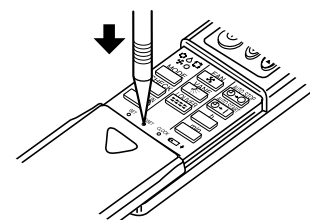
### Battery installation/replacement

1. Remove the top cover, insert two AAA batteries, and then install the top cover.



Two AAA batteries  
Insert the negative (-) end of each battery first. Install the batteries in the correct directions (+, -).

2. Press the Reset button.



Press the Reset button with an object that has a narrow end.

## 3

## SPECIFICATION

INDOOR UNIT	Service Ref.			PEA-RP100GAA	
	Mode			Cooling, Heating	
	Power supply			Single phase, 50Hz, 220-240V	
	Input		kW	0.21	
	Running Current		A	1.83	
	External finish			Galvanized sheets	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Sirocco fan × 2	
		Fan motor output		kW	0.249
		Airflow (Low-High)	50Pa	m³/min (L/S)	34-42 (560-700)
			100Pa		
			150Pa		
	External static pressure		Pa	50-100-150	
	Booster heater		kW	-	
	Operation control & Thermostat			Remote controller & built-in	
	Sound pressure level (Low-High)	50Pa	dB (A)	39-42	
		100Pa		42-45	
150Pa		44-48			
Field drain pipe O.D		mm (in.)	25.4 (1)		
Dimensions	W	mm (in.)	1400 (55-1/8)		
	D	mm (in.)	634 (25)		
	H	mm (in.)	400 (15-3/4)		
Weight		kg	63		
		lbs	139		

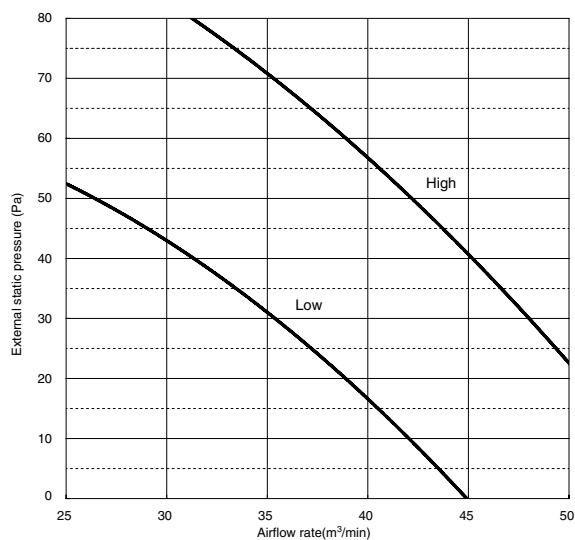
INDOOR UNIT

Service Ref.			PEA-RP125GAA		
Mode			Cooling, Heating		
Power supply			Single phase, 50Hz, 220-240V		
	Input	kW	0.49		
	Running Current	A	3.84		
External finish			Galvanized sheets		
Heat exchanger			Plate fin coil		
Fan	Fan (drive) × No.		Sirocco fan × 2		
	Fan motor output		kW		
	Airflow (Low-High)	50Pa	m³/min (L/S)	0.249	
		100Pa		48-60 (800-1000)	
		150Pa		43-54 (716-900)	
	External static pressure		Pa	41-52 (683-866)	
			50-100-150		
Booster heater		kW	-		
Operation control & Thermostat			Remote controller & built-in		
Sound pressure level (Low-High)	50Pa	dB (A)	42-45		
	100Pa		43-47		
	150Pa		45-49		
Field drain pipe O.D		mm (in.)	25.4 (1)		
Dimensions	W	mm (in.)	1400 (55-1/8)		
	D	mm (in.)	634 (25)		
	H	mm (in.)	400 (15-3/4)		
Weight		kg	63		
		lbs	139		

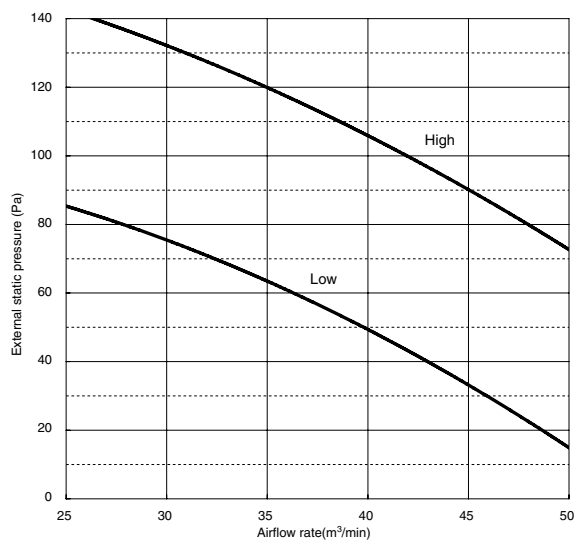
INDOOR UNIT	Service Ref.			PEA-RP140GAA	
	Mode			Cooling, Heating	
	Power supply			Single phase, 50Hz, 220-240V	
	Input		kW	0.49	
	Running Current		A	3.84	
	External finish			Galvanized sheets	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Sirocco fan × 2	
		Fan motor output		kW	0.249
		Airflow (Low-High)	50Pa	m³/min (L/S)	48-60 (800-1000)
			100Pa		43-54 (716-900)
			150Pa		41-52 (683-866)
		External static pressure		Pa	50-100-150
	Booster heater		kW	-	
	Operation control & Thermostat			Remote controller & built-in	
	Sound pressure level (Low-High)	50Pa	dB (A)	42-45	
		100Pa		43-47	
150Pa		45-49			
Field drain pipe O.D		mm (in.)	25.4 (1)		
Dimensions	W	mm (in.)	1400 (55-1/8)		
	D	mm (in.)	634 (25)		
	H	mm (in.)	400 (15-3/4)		
Weight		kg	63		
		lbs	139		

**PEA-RP100GAA**

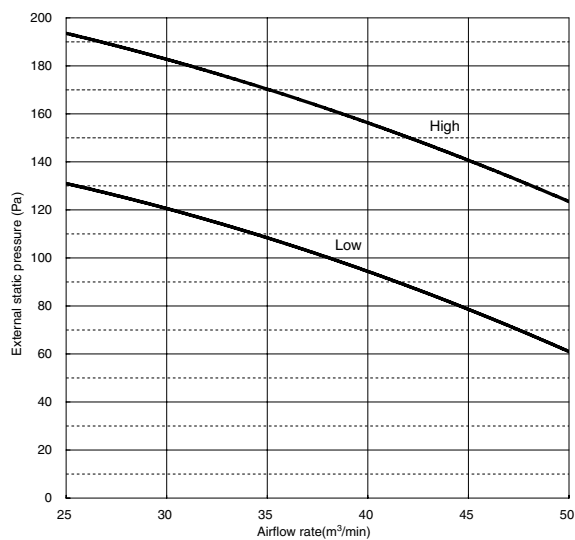
(External static pressure 50Pa) 220-240V 50Hz

**PEA-RP100GAA**

(External static pressure 100Pa) 220-240V 50Hz

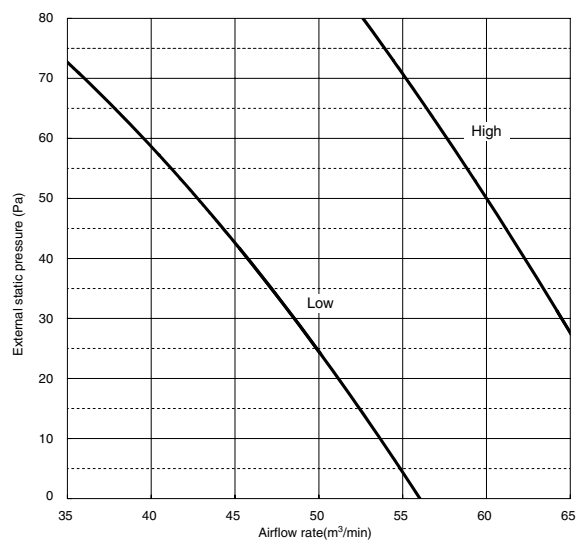
**PEA-RP100GAA**

(External static pressure 150Pa) 220-240V 50Hz



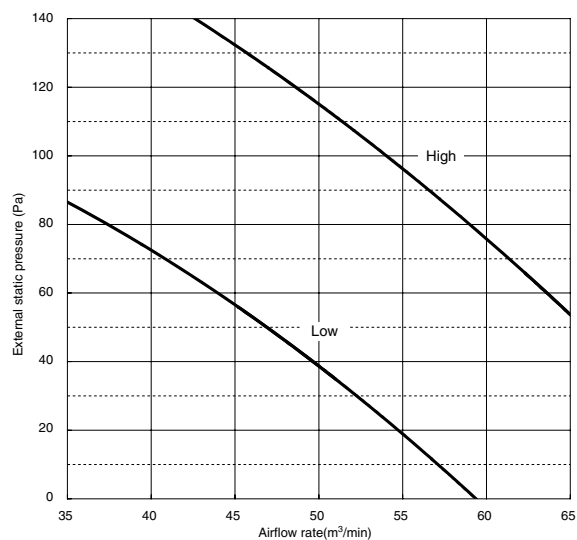
### PEA-RP125GAA

(External static pressure 50Pa) 220-240V 50Hz



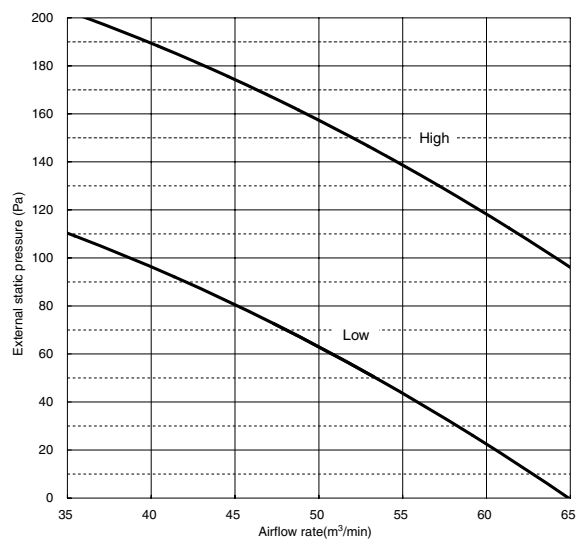
### PEA-RP125GAA

(External static pressure 100Pa) 220-240V 50Hz



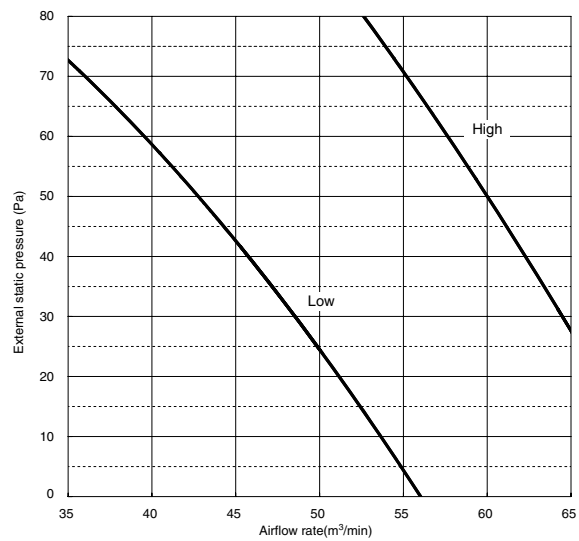
### PEA-RP125GAA

(External static pressure 150Pa) 220-240V 50Hz



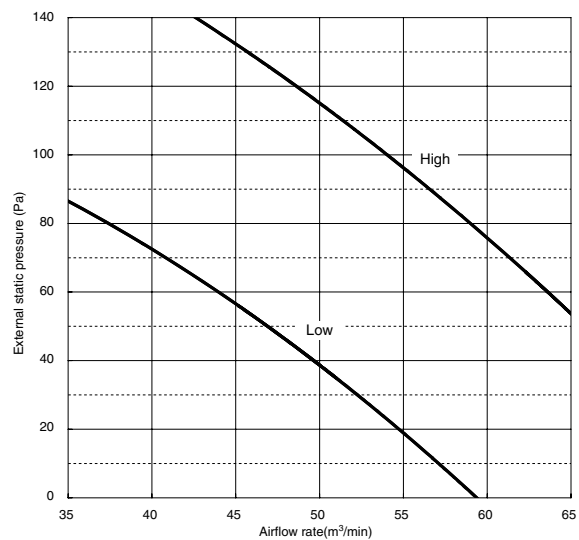
### PEA-RP140GAA

(External static pressure 50Pa) 220-240V 50Hz



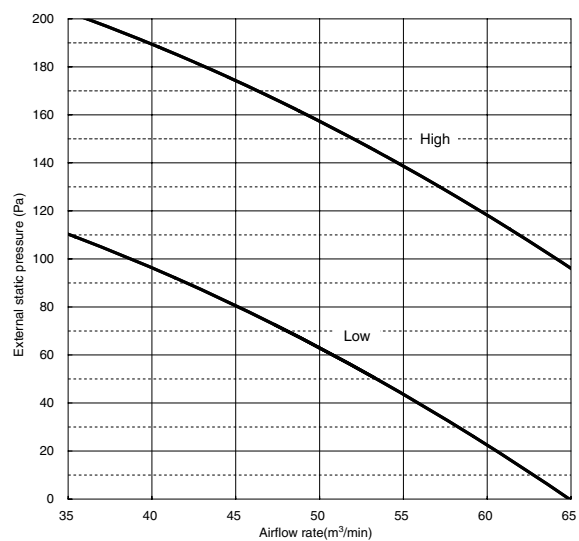
### PEA-RP140GAA

(External static pressure 100Pa) 220-240V 50Hz



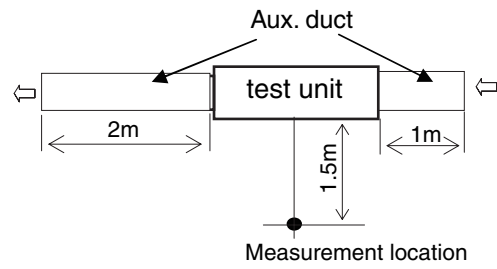
### PEA-RP140GAA

(External static pressure 150Pa) 220-240V 50Hz

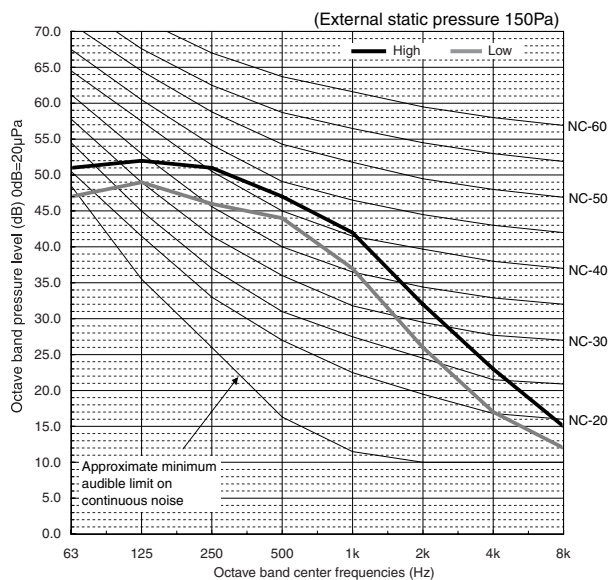
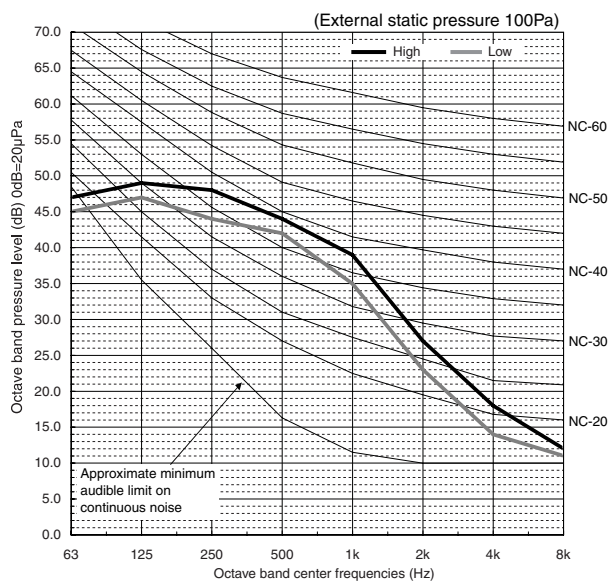
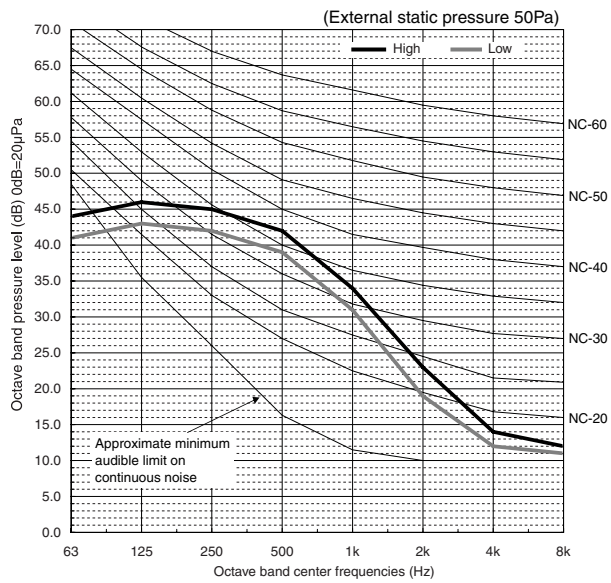


**5-1. Sound pressure level**

Ceiling concealed

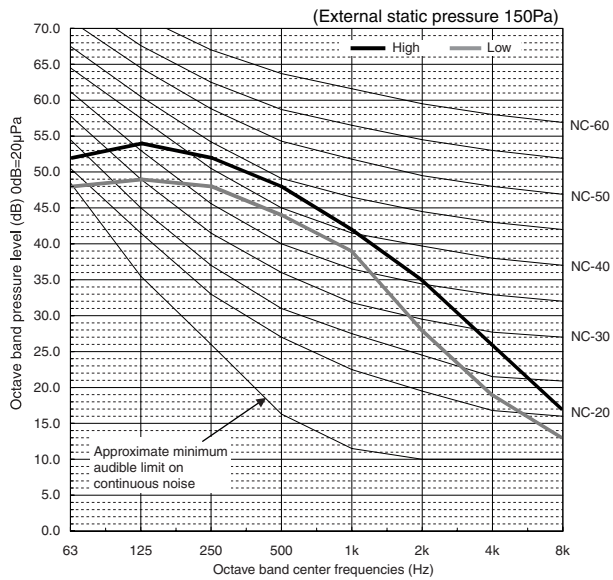
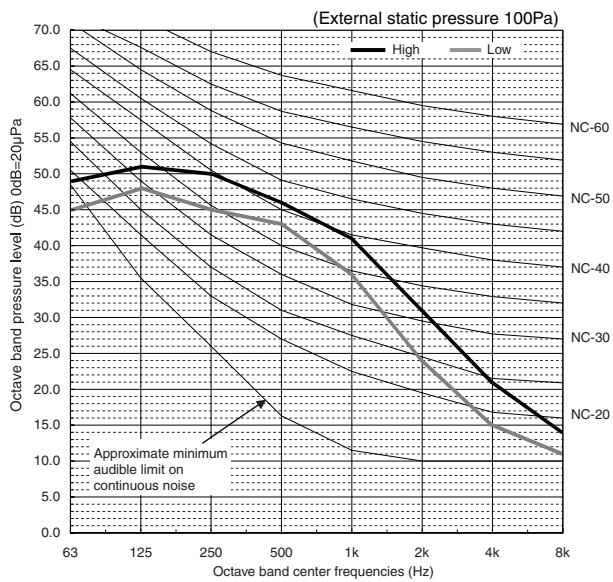
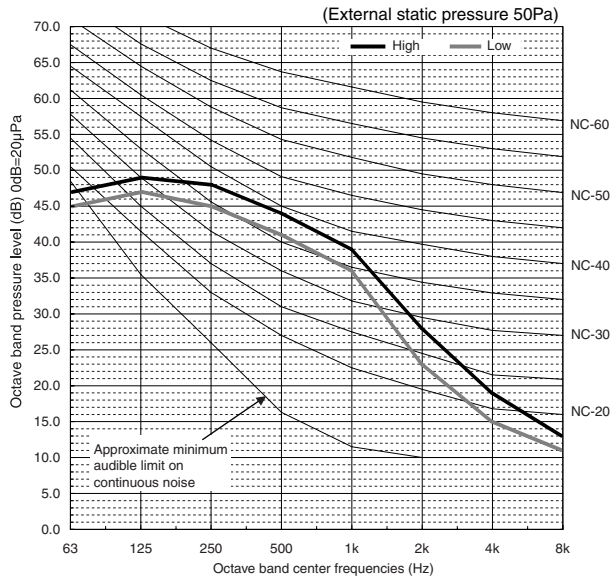


5-2. NC curves  
PEA-RP100GAA

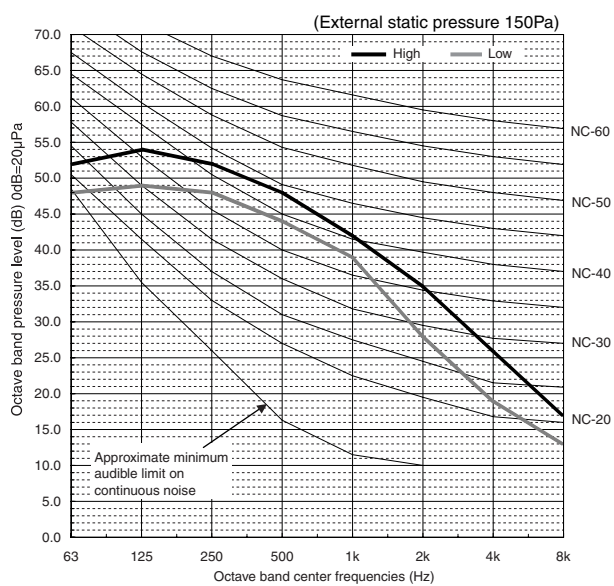
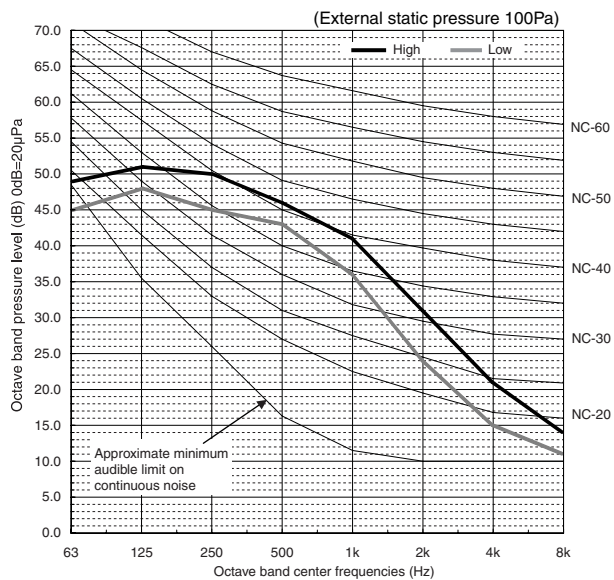
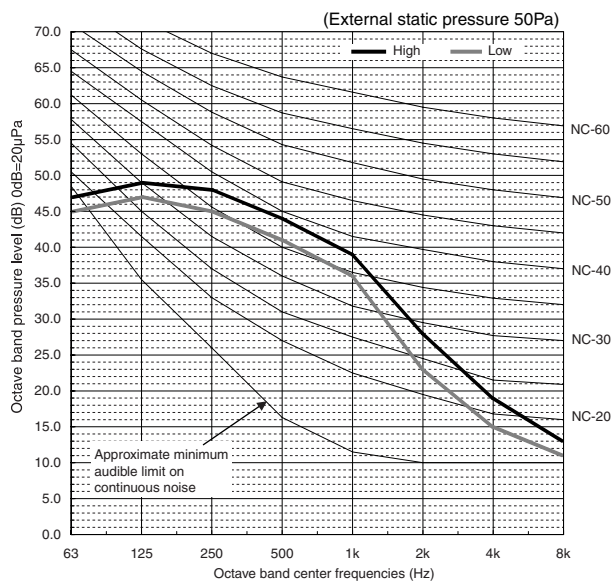




## PEA-RP125GAA



## PEA-RP140GAA

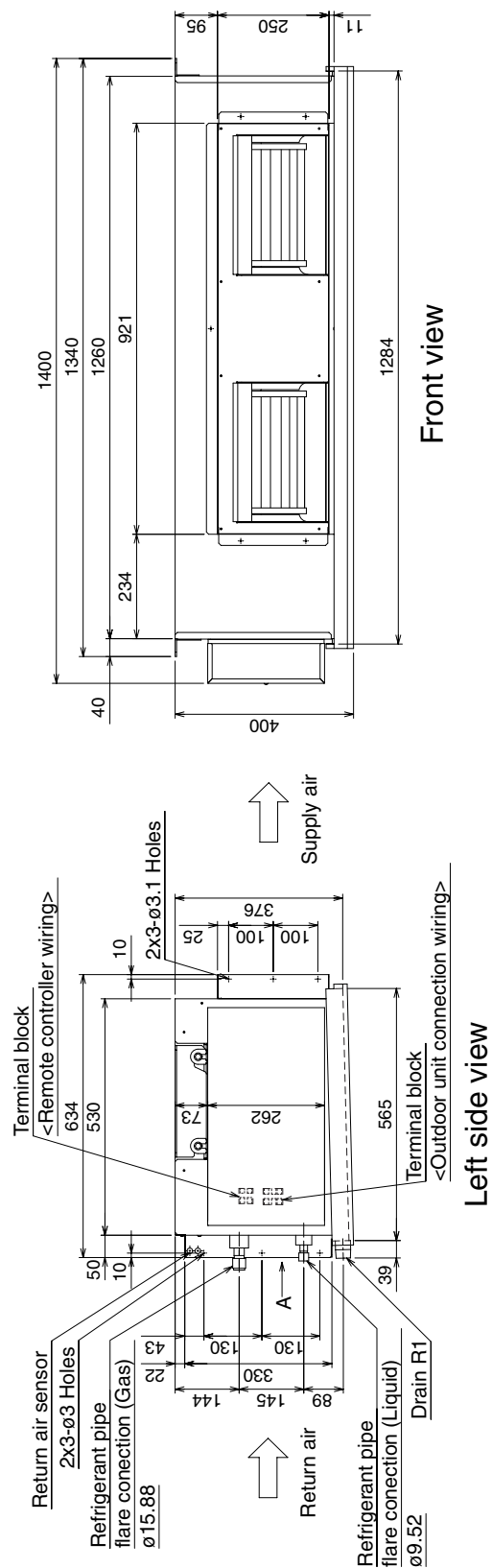
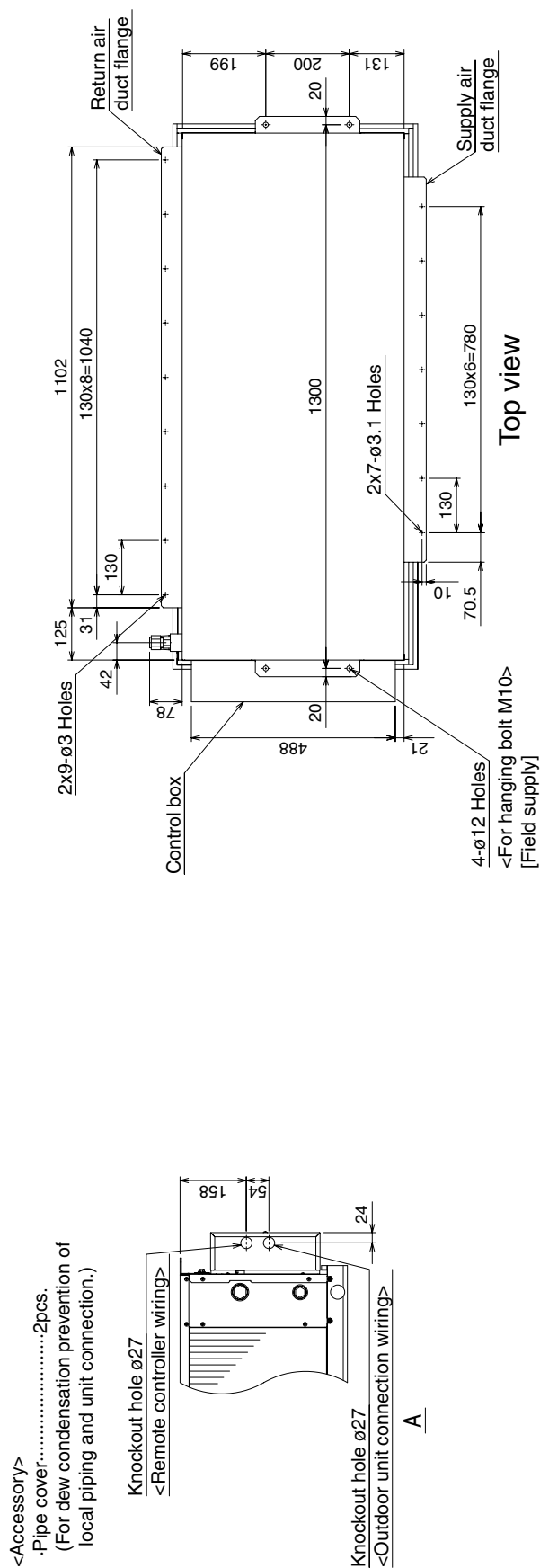


# 6

# OUTLINES & DIMENSIONS

## INDOOR UNIT

PEA-RP100, 125, 140GAA



[Maintenance access space]  
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pan, heat exchanger, and electric box in one of the following ways.  
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

(1) When a space of 500mm or more is available below the unit between the unit and the ceiling, (Fig. 1)

- Create access door 1 and 2 (450x450mm each) as shown in Fig. 3.

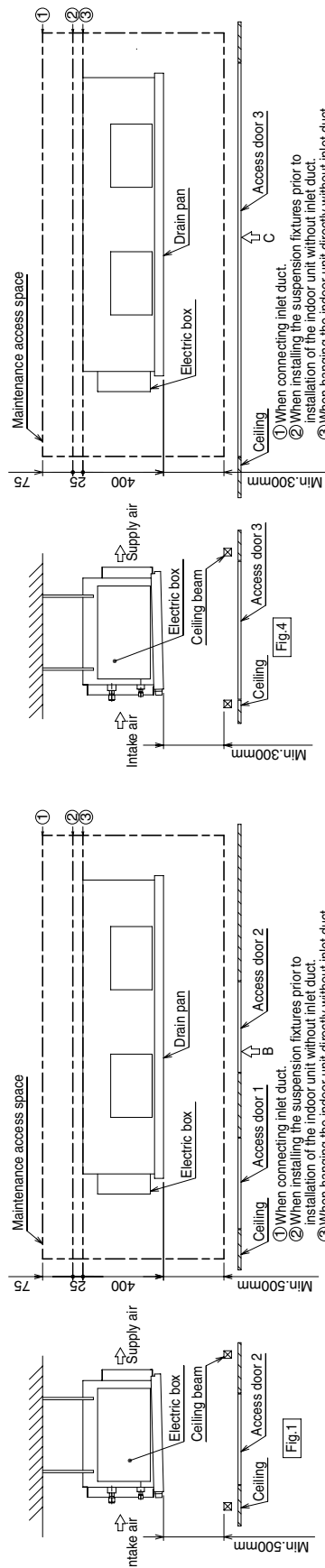
- (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

- An access hole of the same size as the access door 3 as shown in Fig. 6 is required to access drain pan or heat exchanger for replacement. (Required only when the ceiling material cannot be removed)

(2) When a space of less than 500mm is available below the unit between the unit and the ceiling.

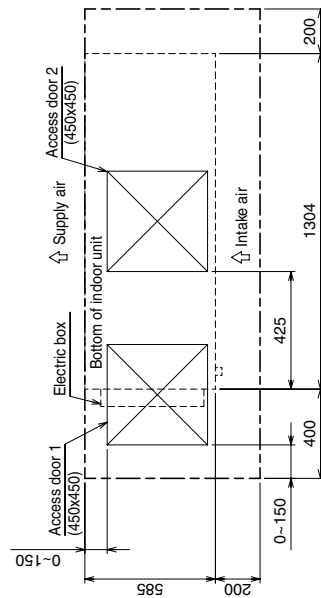
- (At least 300mm of space should be left below the unit as shown in Fig. 4.)

- Create access door 3 below the electric box and the unit as shown in Fig. 6.

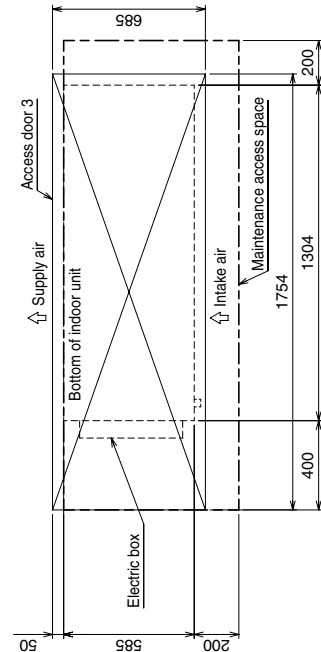


[Fig. 1]

[Fig. 5]



[Fig. 3] (Viewed from the direction of the arrow B)



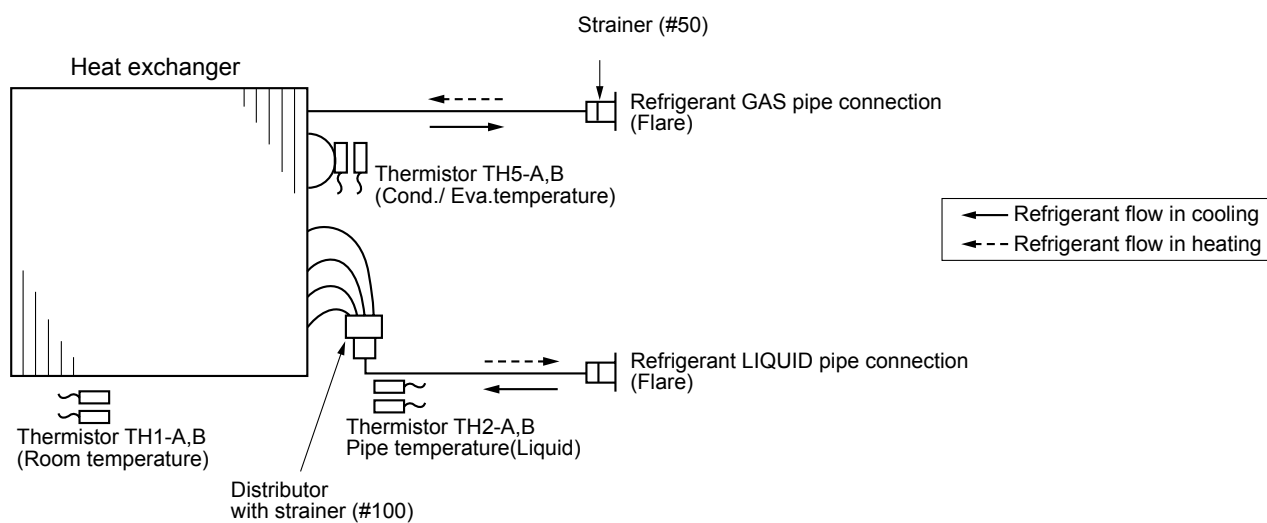
[Fig. 6] (Viewed from the direction of the arrow C)



# 8

# REFRIGERANT SYSTEM DIAGRAM

PEA-RP100, 125, 140GAA



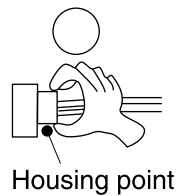
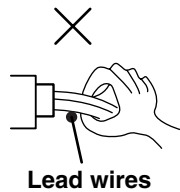
## 9-1. CAUTIONS ON TROUBLESHOOTING

### (1) Before troubleshooting, check the followings:

- ① Check the power supply voltage.
- ② Check the indoor/outdoor connecting wire for mis-wiring.
- ③ PEA-RP-GAA has two control boards. Therefore, "No.1" unit or "No.2" unit is displayed on the remote controller when an initial setup is performed or an error occurs.  
Control Board A is not always No.1 unit and Control Board B is not always No.2 unit. Check the both control boards in case of a malfunction of the fan motor or the sensor.
- ④ Connect the connectors of external input/output devices to the circuit board to which the remote controller is connected.
- ⑤ When there is an external output or output connector, check that it is inserted in the board on the side with the remote controller connected.

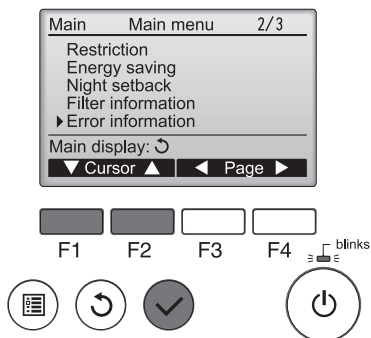
### (2) Take care the followings during servicing.

- ① Before servicing the air conditioner, be sure to turn off the remote controller first to stop the main unit, and then turn off the breaker.
- ② When removing the indoor controller board, hold the edge of the board with care NOT to apply stress on the components.
- ③ When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.



## 9-2. SELF-CHECK FUNCTION

### Wired remote controller



While no errors are occurring, page 2/2 of the error information can be viewed by selecting "Error information" from the Main menu.  
Errors cannot be reset from this screen.







- For description of each check code, refer to the following table.

① Check code	Symptom	Remark
P1	Intake sensor error	Each unit has two each of the following: intake sensors, liquid pipe sensors, 2-phase pipe sensors, and fan motors. When a problem occurs with one of any of the items above, an error code (P1, P2, P8, P9, or PB) will appear. When an error code appears, check both of the items.
P2	Pipe (TH2) sensor error	
P9	Pipe (TH5) sensor error	
E6,E7	Indoor/outdoor unit communication error	
P4	Drain sensor error	
P5	Drain pump error	
PA	Forced compressor error	
PB	Fan motor error	
P6	Freezing/Overheating safeguard operation	
EE	Communication error between indoor and outdoor units	
P8	Pipe temperature error	
E4	Remote controller signal receiving error	
Fb	Indoor unit control system error (memory error, etc.)	
E0, E3	Remote controller transmission error	
E1, E2	Remote controller control board error	
E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board. As for outdoor unit, refer to service manual.
UP	Compressor overcurrent interruption	
U3,U4	Open/short of outdoor unit thermistors	
UF	Compressor overcurrent interruption (When compressor locked)	
U2	Abnormal high discharging temperature/49C worked/insufficient refrigerant	
U1,Ud	Abnormal high pressure (63H worked)/Overheating protection operation	
U5	Abnormal temperature of heat sink	
U8	Outdoor unit fan safeguard stop	
U6	Compressor overcurrent interruption/Abnormal of power module	
U7	Abnormality of super heat due to low discharge temperature	
U9,UH	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error	
Others	Other errors (Refer to the technical manual for the outdoor unit.)	

- On wired remote controller.

① Check code displayed in the LCD.

### Wireless remote controller

- (1) Turn on the power to the unit at least 12 hours before the test run.
- (2) Press the TEST RUN button  twice continuously.  
(Start this operation from the status of remote controller display turned off.)  
 and current operation mode are displayed.
- (3) Press the MODE button  to activate COOL mode, then check whether cool air is blown out from the unit.
- (4) Press the MODE button  to activate HEAT mode, then check whether warm air is blown out from the unit.
- (5) Press the FAN button  and check whether fan speed changes.
- (6) Press the VANE button  and check whether the auto vane operates properly.
- (7) Press the ON/OFF button to stop the test run.

### Note:

- Point the remote controller towards the indoor unit receiver while following steps (2) to (7).
- It is not possible to run the in FAN, DRY or AUTO mode.



[Output pattern A] Errors detected by indoor unit

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp flashes (Number of times)	Check code		
1	P1	Intake sensor error	
2	P2, P9	Pipe (Liquid or 2-phase pipe) sensor error	
3	E6, E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error	
5	P5	Drain pump error	
6	P6	Freezing/Overheating safeguard operation	
7	EE	Communication error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4	Remote controller signal receiving error	
10	—	—	
11	PB	Fan Motor error	
12	Fb	Indoor unit control system error (memory error, etc.)	
No sound	— —	No corresponding	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp flashes (Number of times)		
1	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board.
2	Compressor overcurrent interruption	
3	Open/short of outdoor unit thermistors	
4	Compressor overcurrent interruption (When compressor locked)	
5	Abnormal high discharging temperature/49C worked/ insufficient refrigerant	
6	Abnormal high pressure (63H worked)/ Overheating safeguard operation	
7	Abnormal temperature of heat sink	
8	Outdoor unit fan protection stop	
9	Compressor overcurrent interruption/Abnormal of power module	
10	Abnormality of super heat due to low discharge temperature	
11	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error	
12	—	
13	—	
14	Other errors (Refer to the technical manual for the outdoor unit.)	

**\*1 If the beeper does not sound again after the initial two beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.**

**\*2 If the beeper sounds three times continuously “beep, beep, beep (0.4 + 0.4 + 0.4 sec.)” after the initial two beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.**

- On wireless remote controller  
The continuous buzzer sounds from receiving section of indoor unit.  
Blink of operation lamp
- On wired remote controller  
Check code displayed on the LCD.
- Check that all LEDs on the two control boards on the indoor unit are lit or blinking (3 each, 6 total).

• If the unit cannot be operated properly after the test run has been performed, refer to the following table to remove the cause.

Symptom		Cause	
Wired remote controller	LED 1, 2 (PCB in outdoor unit)		
PLEASE WAIT	For about 2 minutes following power-on	After LED 1, 2 are lighted, LED 2 is turned off, then only LED 1 is lighted. (Correct operation)	• For about 2 minutes after power-on, operation of the remote controller is not possible due to system start-up. (Correct operation)
PLEASE WAIT → Error code	After about 2 minutes has expired following power-on	Only LED 1 is lighted. → LED 1, 2 blink.	• Connector for the outdoor unit's protection device is not connected. • Reverse or open phase wiring for the outdoor unit's power terminal block (L1, L2, L3)
Display messages do not appear even when operation switch is turned ON (operation lamp does not light up).		Only LED 1 is lighted. → LED 1, 2 blinks twice, LED 2 blinks once.	• Incorrect wiring between indoor and outdoor units (incorrect polarity of S1, S2, S3) • Remote controller wire short

On the wireless remote controller with conditions above, following phenomena takes place.

- No signals from the remote controller are accepted.
- OPE lamp is blinking.
- The buzzer makes a short ping sound.

**Note:**

**Operation is not possible for about 30 seconds after cancellation of function selection. (Correct operation)**

For description of each LED (LED1, 2, 3) provided on the indoor controller, refer to the following table.

LED 1 (power for microcomputer)	Indicates whether control power is supplied. Make sure that this LED is always lit.
LED 2 (power for remote controller)	Indicates whether power is supplied to the remote controller. This LED lights only in the case of the indoor unit which is connected to the outdoor unit refrigerant address "0".
LED 3 (communication between indoor and outdoor units)	Indicates state of communication between the indoor and outdoor units. Make sure that this LED is always blinking.

## AUTO RESTART FUNCTION

### Indoor controller board

This model is equipped with the AUTO RESTART FUNCTION.

When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the indoor controller board.

The auto restart function sets to work the moment the power has restored after power failure, then, the unit will restart automatically.

Set the AUTO RESTART FUNCTION using the wireless remote controller. (Mode no.1).

### 9-3. SELF-DIAGNOSIS ACTION TABLE

Note: Refer to the manual of outdoor unit for the details of display such as F, U, and other E.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P1	<b>Room temperature thermistor (TH1)</b> ① The unit is in three-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after three minutes. (The unit returns to normal operation, if it has normally reset.) ② Constantly detected during cooling, drying and heating operation Short: 90°C or more Open: -40°C or less	① Defective thermistor characteristics ② Contact failure of connector (CN20) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective indoor controller board	①—③ Check resistance value of thermistor. 0°C .....15.0kΩ 10°C ....9.6kΩ 20°C ....6.3kΩ 30°C ....4.3kΩ 40°C ....3.0kΩ If you put force on (draw or bend) the lead wire with measuring resistance value of thermistor breaking of wire or contact failure can be detected. ② Check contact failure of connector (CN20) on the indoor controller board. Refer to 9-5. Turn the power on again and check restart after inserting connector again. ④ Check room temperature display on remote controller. Replace indoor controller board if there is abnormal difference with actual room temperature.  Turn the power off, and on again to operate after check.
P2	<b>Pipe temperature thermistor/Liquid (TH2)</b> ① The unit is in three-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after three minutes. (The unit returns to normal operation, if it has normally reset.) ② Constantly detected during cooling, drying, and heating (except defrosting) operation. Short: 90°C or more Open: -40°C or less	① Defective thermistor characteristics ② Contact failure of connector (CN44) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective refrigerant circuit is causing thermistor temperature of 90°C or more or -40°C or less. ⑤ Defective indoor controller board	①—③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN44) on the indoor controller board. Refer to 9-5. Turn the power on again and check restart after inserting connector again. ④ Check pipe <liquid> temperature with remote controller in test run mode. If pipe <liquid> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defective. ⑤ Check pipe <liquid> temperature with remote controller in test run mode. If there is extreme difference with actual pipe <liquid> temperature, replace indoor controller board.  Turn the power off, and on again to operate after check.
P4 (5701)	<b>Contact failure of drain float switch (CN4F)</b> ① Extract when the connector of drain float switch is disconnected. (③ and ④ of connector CN4F is not short-circuited.) ② Constantly detected during operation.	① Contact failure of connector (Insert failure)  ② Defective indoor controller board	① Check contact failure of float switch connector. Turn the power on again and check after inserting connector again. ② Operate with connector (CN4F) short-circuited. Replace indoor controller board if abnormality reappears.
P5	<b>Drain overflow protection operation</b> ① Suspensive abnormality, if drain float switch is detected to be underwater for 1 minute and 30 seconds continuously with drain pump on. Turn off compressor and indoor fan. ② Drain pump is abnormal if the condition above is detected during suspensive abnormality. ③ Constantly detected during drain pump operation.	① Malfunction of drain pump ② Defective drain Clogged drain pump Clogged drain pipe ③ Defective drain float switch Catch of drain float switch or malfunction of moving parts cause drain float switch to be detected under water (Switch On) ④ Defective indoor-controller board	① Check if drain-up machine works. ② Check drain function.  ③ Remove drain float switch connector CN4F and check if it is short (Switch On) with the moving part of float switch UP, or OPEN with the moving part of float switch down. Replace float switch if it is short with the moving part of float switch down. ④ Replace indoor controller board if it is short-circuited between ③-④ of the drain float switch connector CN4F and abnormality reappears.  It is not abnormal if there is no problem about the above-mentioned ①~④ Turn the power off, and on again to operate after check.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P6	<b>Freezing/overheating protection is working</b> ① Freezing protection (Cooling mode) The unit is in six-minute resume prevention mode if pipe <liquid or condenser/evaporator> temperature stays under -15°C for three minutes after the compressor started. Abnormal if it stays under -15°C for three minutes again within 16 minutes after six-minute resume prevention mode. ② Overheating protection (Heating mode) The units is in six-minute resume prevention mode if pipe <Liquid or condenser/evaporator> temperature is detected as over 70°C after the compressor started. Abnormal if the temperature of over 70°C is detected again within 10 minutes after six-minute resume prevention mode.	(Cooling or drying mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Low-load (low temperature) operation beyond the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective.  ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs)  (Heating mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Over-load (high temperature) operation beyond the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective.  ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs) ⑧ Bypass circuit of outdoor unit is defective.	(Cooling or drying mode) ① Check clogging of the filter. ② Remove shields.  ④ Refer to 9-8. DC Fan motor (FAN MOTOR/ INDOOR CONTROLLER BOARD)  ⑤ Check outdoor fan motor. ⑥⑦ Check operating condition of refrigerant circuit.  (Heating mode) ① Check clogs of the filter. ② Remove shields.  ④ Refer to 9-8. DC Fan motor (FAN MOTOR/ INDOOR CONTROLLER BOARD)  ⑤ Check outdoor fan motor. ⑥~⑧ Check operating condition of refrigerant circuit.
P8	<b>Pipe temperature</b> <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes after compressor start and 6 minutes after the liquid or condenser/evaporator pipe is out of cooling range. Note 1) It takes at least 9 minutes. to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range : -3 deg $\geq$ (TH-TH1) TH: Lower temperature between: liquid pipe temperature (TH2) and condenser/evaporator temperature (TH5) TH1: Intake temperature  <Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes.  Note 3) It takes at least 27 minutes to detect abnormality. Note 4) It excludes the period of defrosting (Detection restarts when defrosting mode is over) Heating range : 3 deg $\leq$ (TH5-TH1)	① Slight temperature difference between indoor room temperature and pipe <liquid or condenser/evaporator> temperature thermistor • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser/ evaporator> thermistor • Defective refrigerant circuit ② Converse connection of extension pipe (on plural units connection) ③ Converse wiring of indoor/ outdoor unit connecting wire (on plural units connection) ④ Defective detection of indoor room temperature and pipe <condenser/evaporator> temperature thermistor ⑤ Stop valve is not opened completely.	①~④ Check pipe <liquid or condenser/ evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser/evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows. (Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool(PAC-SK52ST)'). ②③ Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P9	<b>Abnormality of pipe temperature thermistor/Condenser-Evaporator (TH5)</b> ① The unit is in three-minute resume protection mode if short/open of thermistor is detected. Abnormal if the unit does not get back to normal within three minutes. (The unit returns to normal operation, if it has normally reset.) ② Constantly detected during cooling, drying, and heating operation (except defrosting) Short: 90°C or more Open: -40°C or less	① Defective thermistor characteristics ② Contact failure of connector (CN44) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Temperature of thermistor is 90°C or more or -40°C or less caused by defective refrigerant circuit. ⑤ Defective indoor controller board	①—③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN44) on the indoor controller board. Refer to 9-5. Turn the power on and check restart after inserting connector again. ④ Operate in test run mode and check pipe <condenser/evaporator> temperature. If pipe <condenser/evaporator> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defect. ⑤ When no problems are found in ①-④ above, replace the indoor unit control board.
E0 or E4	<b>Remote controller transmission error(E0)/signal receiving error(E4)</b> ① Abnormal if main or sub remote controller can not receive normally any transmission from indoor unit of refrigerant address "0" for three minutes. (Error code : E0) ② Abnormal if sub remote controller could not receive for any signal for two minutes. (Error code: E0) ① Abnormal if indoor controller board can not receive normally any data from remote controller board or from other indoor controller board for three minutes. (Error code: E4) ② Indoor controller board cannot receive any signal from remote controller for two minutes. (Error code: E4)	① Contact failure at transmission wire of remote controller ② All remote controllers are set as "sub" remote controller. In this case, E0 is displayed on remote controller, and E4 is displayed at LED (LED1, LED2) on the outdoor controller circuit board. ③ Mis-wiring of remote controller ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board of refrigerant address "0" ⑥ Noise has entered into the transmission wire of remote controller.	① Check disconnection or looseness of indoor unit or transmission wire of remote controller. ② Set one of the remote controllers "main". If there is no problem with the action above. ③ Check wiring of remote controller. • Total wiring length: max.500m (Do not use cable X 3 or more) • The number of connecting indoor units: max.16units • The number of connecting remote controller: max.2units When it is not the above-mentioned problem of ①~③ ④ Diagnose remote controllers. a) When "RC OK" is displayed, Remote controllers have no problem. Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board. b) When "RC NG" is displayed, Replace remote controller. c) When "RC E3" is displayed, d) When "ERC 00-06" is displayed, [ c),d)→Noise may be causing abnormality. ] * If the unit is not normal after replacing indoor controller board in group control, indoor controller board of address "0" may be abnormal.
E3 or E5	<b>Remote controller transmission error(E3)/signal receiving error(E5)</b> ① Abnormal if remote controller could not find blank of transmission path for six seconds and could not transmit. (Error code: E3) ② Remote controller receives transmitted data at the same time, compares the data, and when detecting it, judges different data to be abnormal 30 continuous times. (Error code: E3) ① Abnormal if indoor controller board could not find blank of transmission path. (Error code: E5) ② Indoor controller board receives transmitted data at the same time, compares the data, and when detecting it, judges different data to be abnormal 30 continuous times. (Error code: E5)	① Two remote controller are set as "main." (In case of 2 remote controllers) ② Remote controller is connected with two indoor units or more. ③ Repetition of refrigerant address ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Noise has entered into transmission wire of remote controller.	① Set a remote controller to main, and the other to sub. ② Remote controller is connected with only one indoor unit. ③ The address changes to a separate setting. ④~⑥ Diagnose remote controller. a) When "RC OK" is displayed, remote controllers have no problem. Turn the power off, and on again to check. When becoming abnormal again, replace indoor controller board. b) When "RC NG" is displayed, replace remote controller. c) When "RC E3" or "ERC 00-66" is displayed, noise may be causing abnormality.

Error Code	Abnormal point and detection method	Cause	Countermeasure
E6	<b>Indoor/outdoor unit communication error (Signal receiving error)</b> ① Abnormal if indoor controller board cannot receive any signal normally for six minutes after turning the power on. ② Abnormal if indoor controller board cannot receive any signal normally for three minutes. ③ Consider the unit as abnormal under the following condition: When two or more indoor units are connected to an outdoor unit, indoor controller board cannot receive a signal for three minutes from outdoor controller circuit board, a signal which allows outdoor controller circuit board to transmit signals.	① Contact failure, short circuit or, mis-wiring (converse wiring) of indoor/outdoor unit connecting wire ② Defective transmitting receiving circuit of indoor controller board ③ Defective transmitting receiving circuit of indoor controller board ④ Noise has entered into indoor/outdoor unit connecting wire.	* Check LED display on the outdoor control circuit board. (Connect A-control service tool, PAC-SK52ST.) Refer to Outdoor manual. ① Check disconnection or looseness of indoor/outdoor unit connecting wire of indoor unit or outdoor unit. Check all the units in case of twin triple indoor unit system. ②-④ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board or outdoor controller circuit board. * Other indoor controller board may have defect in case of twin triple indoor unit system.
E7	<b>Indoor/outdoor unit communication error (Transmitting error)</b> Abnormal if "1" receiving is detected 30 times continuously though indoor controller board has transmitted "0".	① Defective transmitting receiving circuit of indoor controller board ② Noise has entered into power supply. ③ Noise has entered into outdoor control wire.	①-③ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board.
Fb	<b>Indoor controller board</b> Abnormal if data cannot be read normally from the nonvolatile memory of the indoor controller board.	① Defective indoor controller board	① Replace indoor controller board.
E1 or E2	<b>Remote controller control board</b> ① Abnormal if data cannot be read normally from the nonvolatile memory of the remote controller control board. (Error code: E1) ② Abnormal if the clock function of remote controller cannot be operated normally. (Error code: E2)	① Defective remote controller	① Replace remote controller.
PA (2500)	<b>Water leakage</b> This detection is performed during the operation (stop, heating, fan, or error stop mode etc.) other than cooling and dry. ① When a) and b) are found, water leakage occurs. a) Pipe <liquid> temperature - inlet temperature < -10°C for 30 minutes b) When drain float switch is detected to be soaked in the water for 15 minutes or more. * When drain float switch is detected to be NOT soaked in the water, each counting of a) and b) is cleared. <b><u>*When this error is detected, the error will not be reset until the main power is reset.</u></b>	① Mis-piping of extension pipes (When connected with multiple units) ② Mis-wiring of indoor/outdoor unit connecting wire (When connected with multiple units) ③ Detection failure of the indoor unit inlet/pipe <liquid> thermostat ④ Drain pump failure ⑤ Drainage failure · Clogged drain pump · Clogged drain pipe ⑥ Drain float switch failure · Drain float switch is detected to be soaked in the water (ON status) due to the operation failure of the moving parts. · Contact failure of drain float switch connector (Loose connector)	① Check the extension pipes for mis-piping. ② Check the Indoor/outdoor unit connecting wire for mis-wiring. ③ Check room temperature display on remote controller and indoor pipe <liquid> temperature. (Refer to the countermeasure on P2.) ④ Check if drain-up machine works. ⑤ Check drain function. ⑥ Check drain float switch. (Refer to the countermeasure on P4 and P5.)
PB	<b>Fan motor error</b> Abnormal if a) or b) is detected during fan motor operation. a) When the number of rotations is detected to be below the lower limit for 30 seconds. b) When the number of rotations is detected to be above the upper limit for 30 seconds.	① Motor or fan cannot rotate because of foreign object, etc. ② Motor wire disconnection or connector disconnection or looseness ③ Motor failure	① Remove the foreign object causing the problem. ② Check disconnection of the motor wiring or connector disconnection. ③ Replace the failed motor.

## 9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA

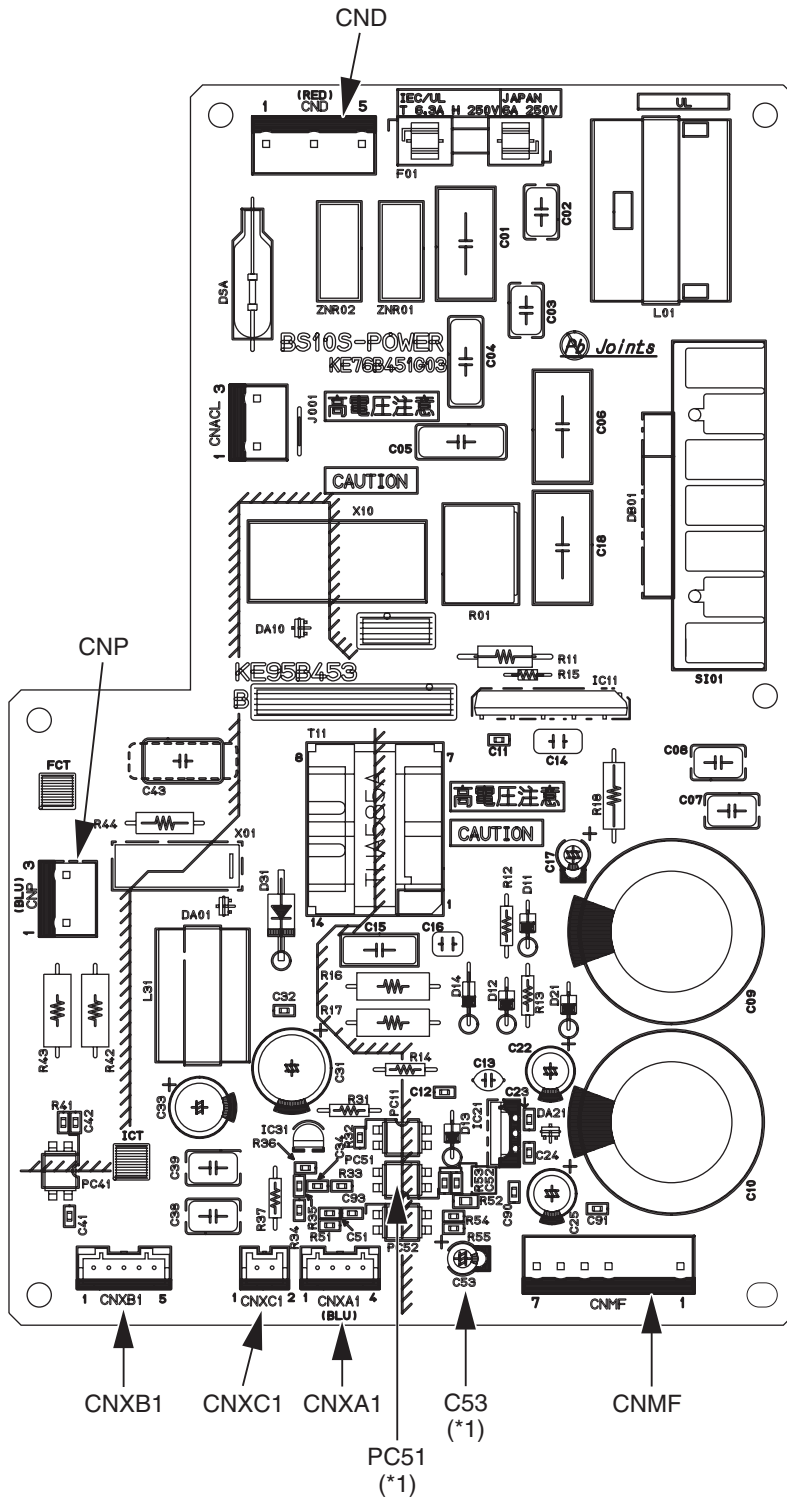
Note: Refer to the manual of outdoor unit for the detail of remote controller.

Phenomena	Cause	Countermeasure
(1)LED2 on indoor controller board is off.	<ul style="list-style-type: none"> <li>• When LED1 on indoor controller board is also off.</li> </ul> <ol style="list-style-type: none"> <li>① Power supply of rated voltage is not supplied to outdoor unit.</li> <li>② Defective outdoor controller circuit board</li> <li>③ Power supply of 220~240V is not supplied to indoor unit.</li> <li>④ Defective indoor controller board</li> </ol>	<ol style="list-style-type: none"> <li>① Check the voltage of outdoor power supply terminal block (L, N) or (L3, N). <ul style="list-style-type: none"> <li>• When AC 220~240V is not detected. Check the power wiring to outdoor unit and the breaker.</li> <li>• When AC 220~240V is detected. —Check ② (below).</li> </ul> </li> <li>② Check the voltage between outdoor terminal block S1 and S2. <ul style="list-style-type: none"> <li>• When AC 220~240V is not detected. Check the fuse on outdoor controller circuit board. Check the wiring connection.</li> <li>• When AC 220~240V is detected. —Check ③ (below).</li> </ul> </li> <li>③ Check the voltage between indoor terminal block S1 and S2. <ul style="list-style-type: none"> <li>• When AC 220~240V is not detected. Check indoor/outdoor unit connecting wire for mis-wiring.</li> <li>• When AC 220~240V is detected. —Check ④ (below).</li> </ul> </li> <li>④ Check the fuse on indoor controller board. Check the wiring connection. If no problem are found, indoor controller board is defective.</li> </ol>
(2)LED2 on indoor controller board is blinking.	<ul style="list-style-type: none"> <li>• When LED1 on indoor controller board is also blinking. Connection failure of indoor/outdoor unit connecting wire</li> <li>• When LED1 is lit.</li> </ul> <ol style="list-style-type: none"> <li>① Mis-wiring of remote controller wires Under twin triple indoor unit system, 2 or more indoor units are wired together.</li> <li>② Refrigerant address for outdoor unit is wrong or not set. Under grouping control system, there are some units whose refrigerant address is 0.</li> <li>③ Short-cut of remote controller wires</li> <li>④ Defective remote controller</li> </ol>	<p>Check indoor/outdoor unit connecting wire for connection failure.</p> <ol style="list-style-type: none"> <li>① Check the connection of remote controller wires in case of twin triple indoor unit system. When 2 or more indoor units are wired in one refrigerant system, connect remote controller wires to one of those units.</li> <li>② Check the setting of refrigerant address in case of grouping control system. If there are some units whose refrigerant addresses are 0 in one group, set one of the units to 0 using SW1 (3-6) on outdoor controller circuit board.</li> <li>③④ Remove remote controller wires and check LED2 on indoor controller board. <ul style="list-style-type: none"> <li>• When LED2 is blinking, check the short-cut of remote controller wires.</li> <li>• When LED2 is lit, connect remote controller wires again and: if LED2 is blinking, remote controller is defective; if LED2 is lit, connection failure of remote controller terminal block etc. has returned to normal.</li> </ul> </li> </ol>



## 9-5. TEST POINT DIAGRAM

### 9-5-1. Power supply board



CND Power supply voltage (220 - 240VAC)

CNMF Fan motor output  
 1 - 4: 310 - 340 VDC  
 5 - 4: 15 VDC  
 6 - 4: 0 - 6.5 VDC  
 7 - 4: Stop 0 or 15 VDC  
 Run 7.5 VDC  
 (0 - 15 pulse)

CNP Drain-up mechanism output (200VAC)

CNXA1 Connect to the indoor controller board

CNXB1 Connect to the indoor controller board

CNXC1 Connect to the indoor controller board

CNXA2 Connect to the indoor power board

CNXB2 Connect to the indoor power board

CNXC2 Connect to the indoor power board

(\*1)

$V_{FG}$  Voltage on the (-) side of PC51 and C25  
 (Same with the voltage between 7 (+) and 4 (-) of CNMF)

$V_{CC}$  Voltage between the C25 pins 15 VDC  
 (Same with the voltage between 5 (+) and 4 (-) of CNMF)

$V_{sp}$  Voltage between the C53 pins  
 0VDC (with the fan stopped)  
 1 - 6.5VDC (with the fan in operation)  
 (Same with the voltage between 6 (+) and 4 (-) of CNMF)





## 9-6. TROUBLE CRITERION OF MAIN PARTS

Part name	Check method and criterion				
Room temperature thermistor (TH1)	<div>Measure the resistance with a tester. (Part temperature 10°C ~ 30°C)</div> <table><tr><td>Normal</td><td>Abnormal</td></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Opened or short-circuited</td></tr></table>	Normal	Abnormal	4.3kΩ~9.6kΩ	Opened or short-circuited
Normal		Abnormal			
4.3kΩ~9.6kΩ		Opened or short-circuited			
Pipe temperature thermistor/liquid (TH2)					
Condenser/evaporator temperature thermistor (TH5)					
Wiring diagram	<div><p>The diagram illustrates the electrical connections for a motor control system. On the left, four input terminals are shown: Vm (Power supply for motor), Vcc (Power supply for control), Vsp (Speed command voltage), and PG (Pulse output for rotation). These are connected to a central 'Board with build-in motor'. Inside this board, a 'Regulator' is connected to Vcc and GND. A 'Hall IC' is connected to Vcc, GND, and the motor's feedback signal. The 'Power device' is connected to Vm, GND, and the Hall IC. A 'Pre driver' is connected to the Power device and the motor winding. A 'Current detecting resistor' is connected between the Power device and the Pre driver. The motor winding is shown as three coils connected to the Pre driver. The entire board is connected to GND.</p></div>				

## 9-7. Thermistor

<Thermistor Characteristic graph>

Thermistor for lower temperature

Room temperature thermistor (TH1)  
 Pipe temperature thermistor (TH2)  
 Condenser/evaporator temperature thermistor (TH5)

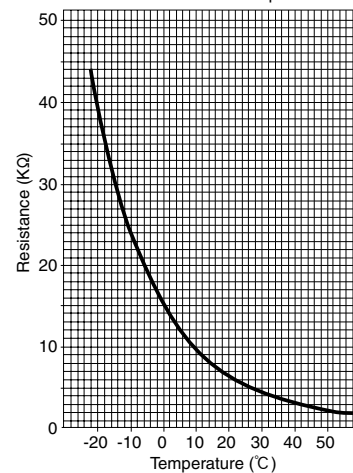
Thermistor  $R_0=15k\Omega \pm 3\%$

Fixed number of  $B=3480k\Omega \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left( \frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	15kΩ
10°C	9.6kΩ
20°C	6.3kΩ
25°C	5.2kΩ
30°C	4.3kΩ
40°C	3.0kΩ

< Thermistor for lower temperature >



## 9-8. DC FAN MOTOR (FAN MOTOR/INDOOR CONTROLLER BOARD)

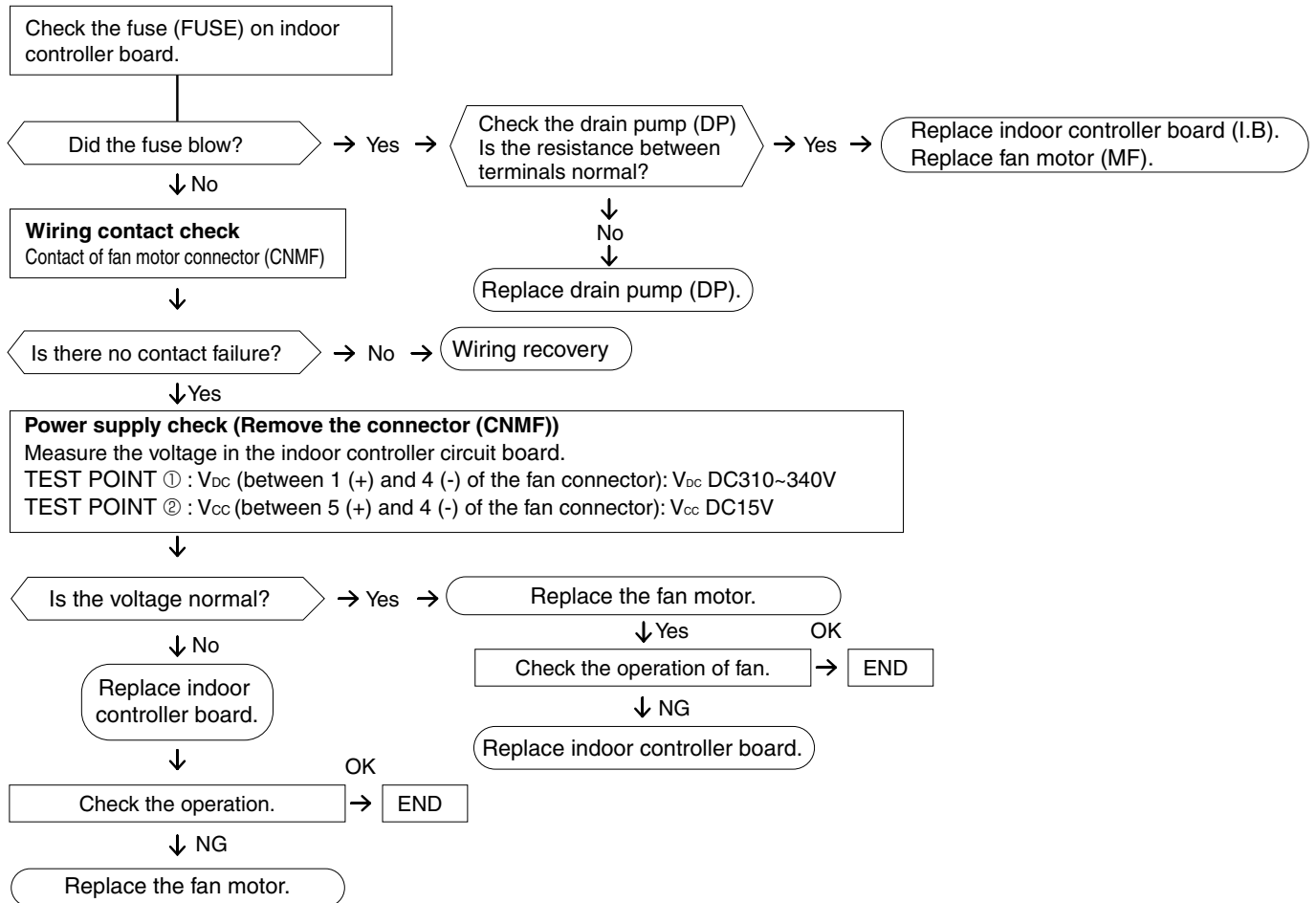
### Check method of DC fan motor (fan motor/indoor controller circuit board)

#### ① Notes

- High voltage is applied to the connector (CNMF) for the fan motor. Give attention to the service.
- Do not pull out the connector (CNMF) for the motor with the power supply on.  
(It causes trouble of the indoor controller circuit board and fan motor.)

#### ② Self check

Symptom : The indoor fan cannot turn around.



## 9-9. FUNCTIONS OF DIP SWITCH AND JUMPER WIRE

Each function is controlled by the dip switch and the jumper wire on control p.c. board.

SW1 and SW2 are equipped only for service parts.

Model setting and capacity setting are memorized in the nonvolatile memory of the control p.c. board of the unit.

(Marks in the table below) Jumper wire (○ : Short × : Open)

Jumper wire	Functions	Setting by the dip switch and jumper wire	Remarks																	
SW1	Model settings	For service board <div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>																		
SW2	Capacity settings	<table><tr><th>MODELS</th><th>Service board</th></tr><tr><td>PEA-RP100GAA</td><td><div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div></td></tr><tr><td>PEA-RP125GAA</td><td><div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div></td></tr><tr><td>PEA-RP140GAA</td><td><div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div></td></tr></table>	MODELS	Service board	PEA-RP100GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>	PEA-RP125GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>	PEA-RP140GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>										
MODELS	Service board																			
PEA-RP100GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>																			
PEA-RP125GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>																			
PEA-RP140GAA	<div><div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>ON</div><div>OFF</div></div></div></div>																			
J41 J42	Pair number setting with wireless remote controller	<table><tr><th rowspan="2">Wireless remote controller setting</th><th colspan="2">Control PCB setting</th></tr><tr><th>J41</th><th>J42</th></tr><tr><td>0</td><td>○</td><td>○</td></tr><tr><td>1</td><td>×</td><td>○</td></tr><tr><td>2</td><td>○</td><td>×</td></tr><tr><td>3 ~ 9</td><td>×</td><td>×</td></tr></table>	Wireless remote controller setting	Control PCB setting		J41	J42	0	○	○	1	×	○	2	○	×	3 ~ 9	×	×	<Settings at time of factory shipment> Wireless remote controller: 0 Control PCB: ○ (for both J41 and J42) Four pair number settings are supported. The pair number settings of the wireless remote controller and indoor control PCB (J41/J42) are given in the table on the left. ('×' in the table indicates the jumper line is disconnected.)
Wireless remote controller setting	Control PCB setting																			
	J41	J42																		
0	○	○																		
1	×	○																		
2	○	×																		
3 ~ 9	×	×																		
JP1	Unit type setting	<table><tr><th>Model</th><th>JP1</th></tr><tr><td>Without TH5</td><td>○</td></tr><tr><td>With TH5</td><td>×</td></tr></table>	Model	JP1	Without TH5	○	With TH5	×	There is no jumper (JP1) because these models have the cond./eva. temperature thermistor (TH5).											
Model	JP1																			
Without TH5	○																			
With TH5	×																			
JP3	Indoor controller board type setting	<table><tr><th>Indoor controller board type</th><th>JP3</th></tr><tr><td>Factory shipment</td><td>○</td></tr><tr><td>Service parts</td><td>○</td></tr></table>	Indoor controller board type	JP3	Factory shipment	○	Service parts	○												
Indoor controller board type	JP3																			
Factory shipment	○																			
Service parts	○																			

\* Make sure the above settings are set the same for both boards.

# 10 DISASSEMBLY PROCEDURE

Exercise caution when removing heavy parts.

## 1. Control box

1. Removing the control box cover

- (1) Remove the two fixing screws on the cover (A) to remove it.

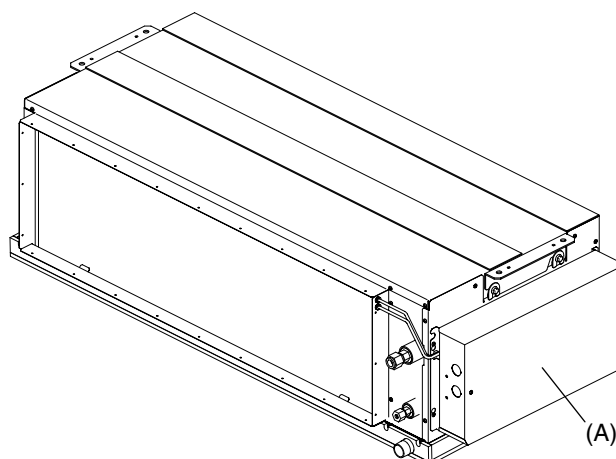


Fig. 1-1

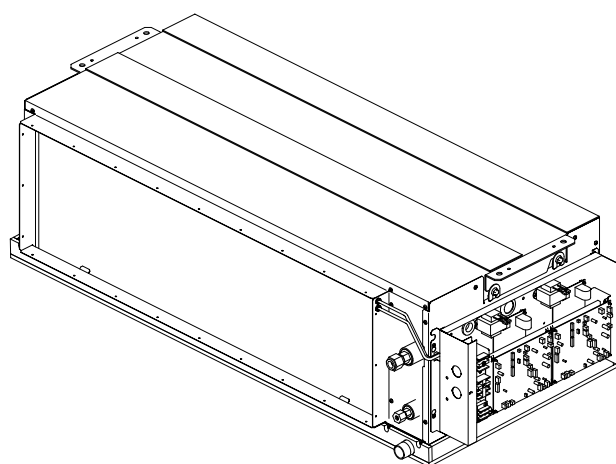


Fig. 1-2

## 2. Thermistor (Intake air)

1. Remove the control box cover according to the procedure in section [1].

- (1) Remove the thermistor holders (D) and (E).
- (2) Pull out the thermistor (B), (C) on the control box.

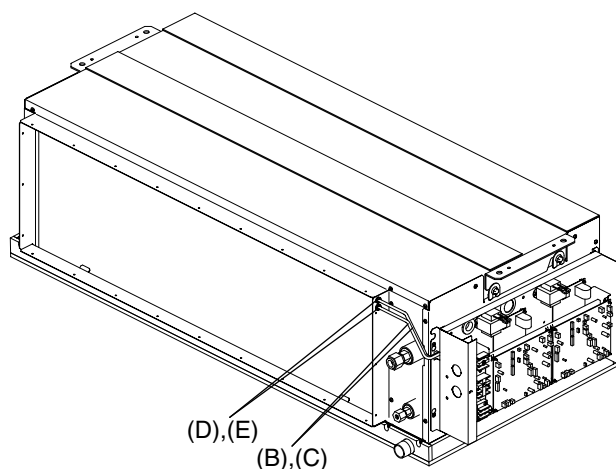


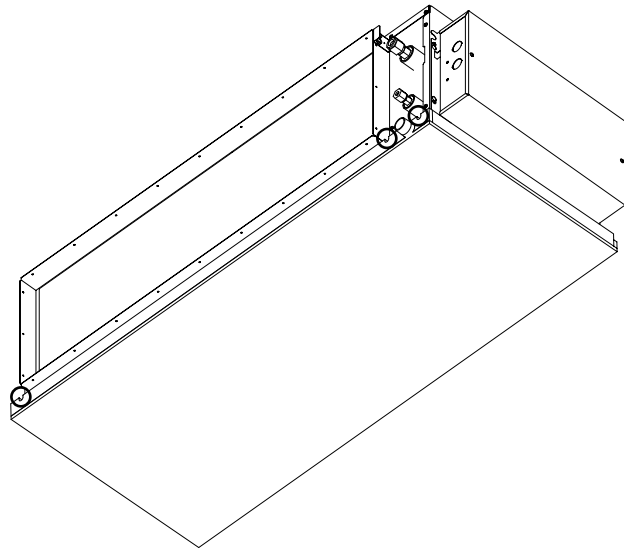
Fig. 2-1

**Exercise caution when removing heavy parts.**

### **3. Drain pan**

#### **1. Removing the drain pan**

- (1) Remove the fixing screws on the drain pan to remove it.



**Fig. 3**

Exercise caution when removing heavy parts.

#### 4. Thermistor (Condenser/evaporator) (Gas pipe)

1. Remove the drain pan according to the procedure in section [3].
2. Removing the heat insulation material.
  - (1) Cut the cable ties securing the heat insulation material (F) and remove the heat insulation material.

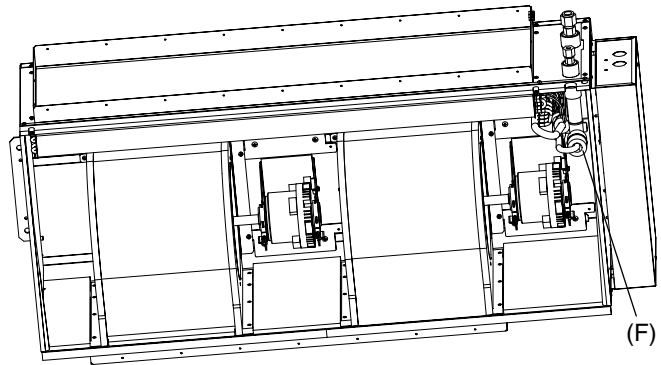


Fig. 4-1

3. Removing the thermistor
  - (1) Remove the thermistor (G), (H) from the thermistor holder (I), (J) on the copper tube.

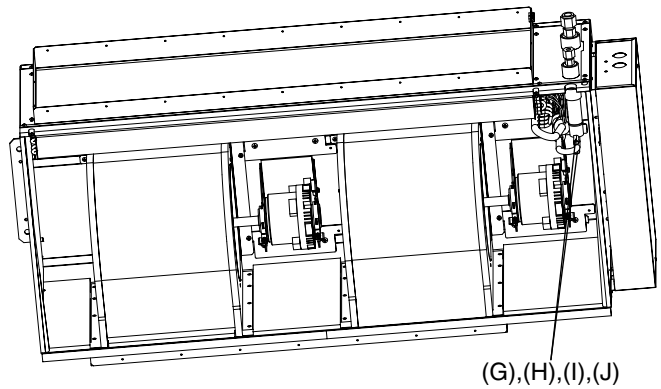


Fig. 4-2

Exercise caution when removing heavy parts.

## 5. Thermistor (Condenser/evaporator) (Liquid pipe)

1. Remove the drain pan according to the procedure in section [3].
2. Removing the thermistor (Intake air) according to the procedure in section [2].
3. Removing the side plate.
  - (1) Remove the screws securing the side plate (K) and move the side plate sideways.

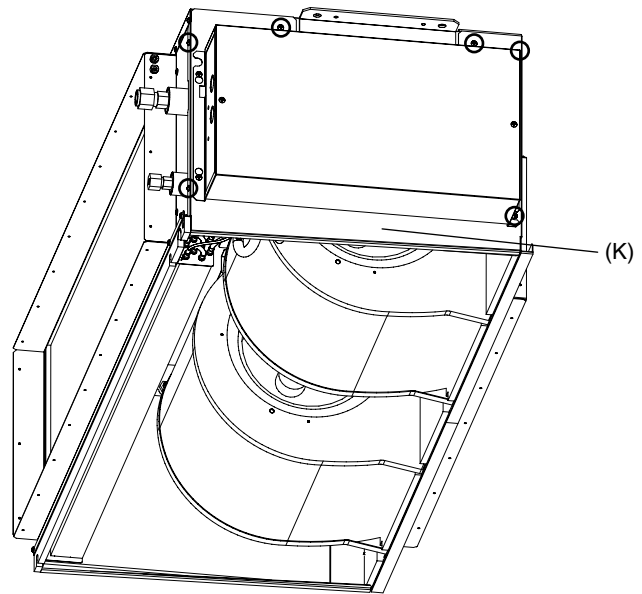


Fig. 5-1

4. Removing the thermistor
  - (1) Remove the thermistor (L), (M) from the thermistor holder (N), (O) on the copper tube.

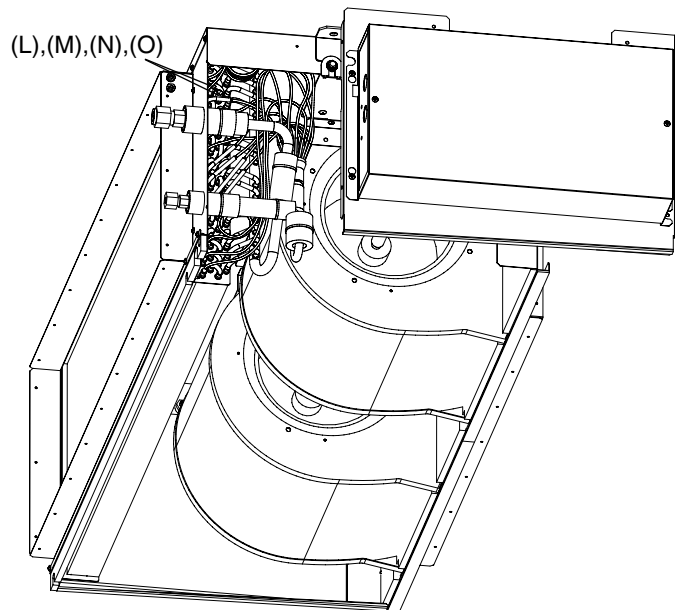


Fig. 5-2



Exercise caution when removing heavy parts.

## 6. Fan and fan motor

1. Remove the drain pan according to the procedure in section [3].
2. Removing the motor cable
  - (1) Remove the motor cable through the rubber bush.
  - (2) Remove the motor wirings from the cable ties.

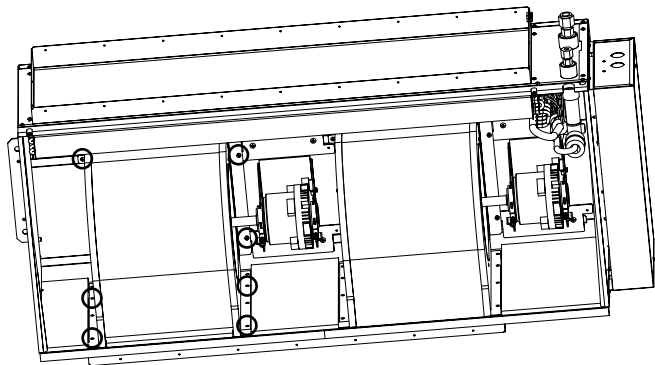


Fig. 6-1

3. Removing the fan casing, fan motor and sirocco fan

- (1) Remove the fan casing fixing screws and motor fixing screws and remove the fan and motor in the direction of the arrow 1.

\* Also remove the other fan casing, fan motor, and Sirocco fan according to the same procedure.

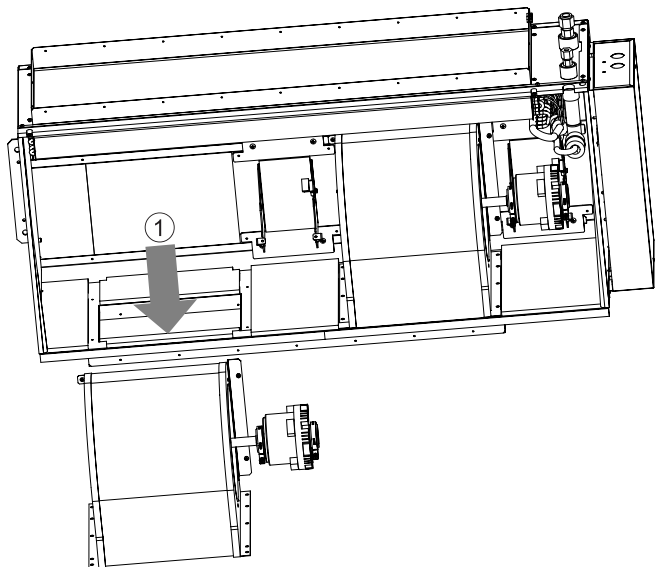


Fig. 6-2

## 7. Heat exchanger

1. Remove the drain pan according to the procedure in section [3].
2. Removing the Heat exchanger
  - (1) Remove the fixing screws on the heat exchanger (P) to remove it.

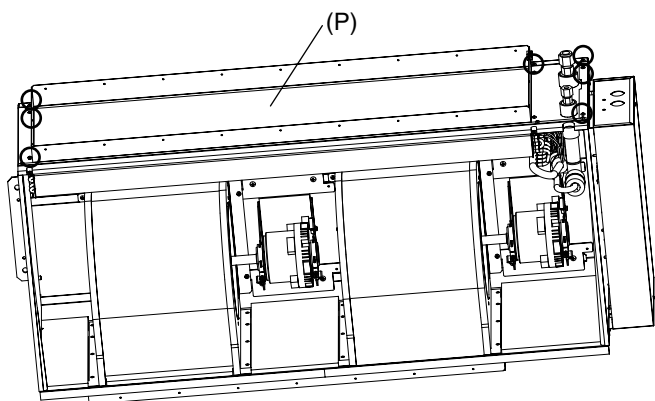


Fig. 7





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